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STATE OF COLORADO

## BUREAU OF MINES

State Capitol, Denver

**Fred Jones**, *Commissioner of Mines*

# ANNUAL REPORTS

## for the Years 1942 and 1943

THE BRADFORD-ROBINSON PTG. CO., DENVER

STATE OF COLORADO

# BUREAU OF MINES

State Capitol, Denver

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1876

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## PERSONNEL OF THE BUREAU OF MINES OF THE STATE OF COLORADO

| | |
|---|---|
| FRED JONES, Commissioner of Mines | Denver |
| GEORGE BECKER, Inspector, District No. 1 | Denver |
| FRED E. THEOBALD, Inspector, District No. 2 | Canon City |
| R. J. MURRAY, Inspector, District No. 3 | Salida |
| D. C. McNAUGHTON, Inspector, District No. 4 | Silverton |
| ETHEL F. McCARTHY, Chief Clerk | Denver |
| MARGARET F. SMITH, Stenographer and Clerk | Denver |
| MARY A. PIPER, Stenographer | Denver |

# COLORADO STATE BUREAU OF MINES

## OFFICES AND MINERAL COLLECTION

**Entire Second Floor**
**MUSEUM BUILDING**
**14th Avenue and Sherman Street**
**Denver (2), Colorado**

The mineral collection of the State Bureau of Mines originated through the efforts of the various Exposition Commissions. Material was assembled by them to illustrate the mineral resources of Colorado and ultimately these collections were turned over to the Bureau of Mines.

The purchase of the Elsner collection added further to the exhibit. For the last twenty years the mineral exhibit has been dependent upon gifts from mining men and people interested in the mining industry. At the present time the number of specimens totals over 10,000.

A complete catalogue of the specimens has been prepared as to species, donors, counties, mines and localities.

The collection has a great deal of educational value. Classes from various schools in Denver and throughout the state visit the Museum yearly or oftener and many of the children show intense interest. Various club groups also study the minerals. Boys and girls, as well as some adults, start their collections from small duplicate specimens given them in the Museum. By making this collection we are able to perpetuate the history of mining in Colorado.

As an advertising feature the Museum is important since over 50,000 people look over the exhibit yearly. These visitors come from every state in the Union and most of them are surprised at the number of ores and minerals that can be produced from Colorado mines and quarries. The collection is a great attraction and constantly growing in popularity.

Appreciation of the value of the collection is increasing among mining and scientific men. The Bureau of Mines has often been called upon to supply definite information concerning types of ore from certain mines. Since the new exhibits of present day operations have been added, many mining men have visited the Museum. The commercial ores on exhibition from every section of the state afford a good idea of the character of the ores found in Colorado. Prospectors have brought in material for comparison and we find that they are particularly interested in the county cases which contain ores and minerals from various Colorado counties.

Three very fine individual collections are now on display—two of these being gifts to the Museum. Several new gold specimens have been received—one from the Philippines, one free gold from Clear Creek County and two showing free gold and argentite. Mercury samples from a new find in Colorado have been secured. Several government agencies have given us very helpful assistance in donating new species of minerals.

A number of rare minerals have been presented for purchase, but we are not in a position financially to buy these. A few hundred dollars would enable us to make purchases of specimens which now go to some other state.

The exhibit occupies three large rooms on the second floor of the Museum building. The middle room contains cases showing gold, silver, lead, copper and zinc ores, and also fluorspar and agates. A replica of the Pueblo Mineral Palace is shown in a special case. It contains small pieces of gold, silver, lead, copper and zinc, and various Colorado gems. The base and roof are native silver. It is of intricate design and we understand it took over two years to complete the model. It was presented to the Museum by the Women's Club of Pueblo and was displayed at the World's Fair in Chicago in 1893. Metals and minerals were donated by gold and silver mines of the state and the smelting companies of Pueblo.

A cast of a silver nugget found in the Mollie Gibson mine at Aspen, Colorado attracts a good deal of attention. The nugget weighed 387 pounds and coined $6,630.00.

The east room contains a number of cases of nonmetallics and rock-making minerals. A very interesting feature, and one which has proven very popular, is the new case of pegmatite dike minerals. The west room has the Colorado Scientific Society display which contains a number of rare Colorado and other minerals. This room also contains cases of molybdenum, manganese, nickel, and carnotite ores, as well as a special San Juan County ore cabinet. There are 32 county cases which contain ores, minerals, and rocks from various Colorado mining counties.

In addition to the cases there are several drawers of igneous, sedimentary and metamorphic rocks which may be studied for purposes of comparison.

A great deal of attention has been given to the Museum during the last ten months. About eight hundred specimens have been added and we have six new cases. Two of the cases contain new exhibits of ores, minerals and concentrates from some of the larger operations in Colorado. Pictures and flow sheets accompany these displays.

The Commissioner of Mines and the four inspectors during their visits to the operating metal mines, quarries, mills and smelters often secure samples of ores and minerals which are placed in the collection for display.

For the Museum to remain up to date, constant additions must be made and we would appreciate receiving ores from mines, prospects and new developments. Gift certificates signed by the Governor and the Commissioner of Mines are sent out to donors of specimens. We ask for the further cooperation of the mining men of Colorado in obtaining specimens and increasing the quantity and quality of those we already have.

The Museum is located at 14th Avenue and Sherman Street, Denver, and is open to visitors every week day from 8:30 a. m. to 5 p. m., except Saturday when it is open from 9 a. m. to 12 noon. Mrs. Mary Piper is in charge of the exhibits and is always ready and willing to aid visitors.

ETHEL F. McCARTHY,
Chief Clerk.

# TABLE I

## PRODUCTION OF THE PRINCIPAL METALS IN COLORADO DURING THE YEARS 1942 AND 1943

| | GOLD[1] | | | | SILVER | | | | COPPER | | | | LEAD | | | | ZINC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1942 | | 1943 | | 1942 | | 1943 | | 1912 | | 1943 | | 1942 | | 1943 | | 1942 | | 1943 | | | | | | |
| County | Fine Ounces | Value | Fine Ounces | Value | Fine Ounces | Value | Fine Ounces | Value | Pounds | Value | Pounds | Value | Pounds | Value | Pounds | Value | Pounds | Value | Pounds | Value | 1942 Total | 1943 Total | Plus Minus | Increase or Decrease in Value | County |
| Adams | 274 | $ 9,590 | 145 | $ 5,075 | 45 | $ 32 | 20 | $ 14 | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | $ 9,622 | $ 5,089 | — | $ 4,533 | Adams |
| Boulder | 15,920 | 557,200 | 2,231 | 78,085 | 26,900 | 19,129 | 12,105 | 8,608 | 39,900 | $ 4,828 | 20,000 | $ 2,600 | 147,700 | $ 9,896 | 113,000 | $ 8,475 | 5,700 | $ 530 | 22,000 | $ 2,376 | 591,583 | 100,144 | — | 491,439 | Boulder |
| Chaffee | 268 | 9,380 | 156 | 5,460 | 1,274 | 906 | 4,472 | 3,180 | 800 | 97 | 1,400 | 182 | 12,000 | 804 | 331,000 | 24,825 | 8,200 | 763 | 44,000 | 4,762 | 11,950 | 38,399 | + | 26,449 | Chaffee |
| Clear Creek | 18,105 | 633,675 | 4,528 | 158,480 | 207,139 | 147,299 | 197,685 | 140,576 | 72,300 | 8,748 | 47,000 | 6,110 | 1,023,700 | 68,588 | 833,400 | 62,505 | 462,000 | 42,966 | 666,000 | 71,928 | 901,276 | 439,599 | — | 461,677 | Clear Creek |
| Costilla | 7 | 245 | ..... | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | 245 | ........ | — | 245 | Costilla |
| Custer | ..... | ....... | 131 | 4,585 | 384 | 273 | 11,693 | 8,315 | ........ | ........ | 300 | 39 | 7,000 | 469 | 181,000 | 13,575 | ........ | ........ | 272,000 | 29,376 | 742 | 55,890 | + | 55,148 | Custer |
| Dolores | 119 | 4,165 | 127 | 4,445 | 110,918 | 78,875 | 145,021 | 103,126 | 70,100 | 8,482 | 144,500 | 18,785 | 4,564,100 | 305,795 | 5,132,000 | 384,900 | 5,528,800 | 514,178 | 7,304,000 | 788,832 | 911,495 | 1,300,088 | + | 388,593 | Dolores |
| Eagle | 2,040 | 71,400 | 421 | 14,735 | 395,252 | 281,068 | 176,116 | 125,238 | 645,700 | 78,130 | 229,000 | 29,770 | 4,480,700 | 300,207 | 3,522,000 | 264,150 | 45,760,400 | 4,255,717 | 57,709,000 | 6,232,572 | 4,986,522 | 6,666,465 | + | 1,679,943 | Eagle |
| Fremont | ..... | ....... | 78 | 2,730 | 66 | 47 | 779 | 554 | 600 | 73 | 27,200 | 3,536 | ........ | ........ | 70,000 | 5,250 | 14,300 | 1,330 | 947,000 | 102,276 | 1,450 | 114,346 | + | 112,896 | Fremont |
| Garfield | ..... | ....... | ..... | ........ | 56 | 40 | ........ | ........ | ........ | ........ | ........ | ........ | 400 | 27 | ........ | ........ | 2,900 | 270 | ........ | ........ | 337 | ........ | — | 337 | Garfield |
| Gilpin | 5,390 | 188,650 | 1,382 | 48,370 | 15,179 | 10,794 | 22,112 | 15,724 | 122,300 | 14,798 | 95,200 | 12,376 | 112,300 | 7,524 | 237,000 | 17,775 | ........ | ........ | 131,000 | 14,148 | 221,766 | 108,393 | — | 113,373 | Gilpin |
| Grand | ..... | ....... | ..... | ........ | 540 | 384 | 277 | 197 | ........ | ........ | ........ | ........ | 1,000 | 67 | ........ | ........ | ........ | ........ | ........ | ........ | 451 | 197 | — | 254 | Grand |
| Gunnison | 1,322 | 46,270 | 43 | 1,505 | 9,132 | 6,494 | 25,207 | 17,925 | 3,600 | 436 | 16,000 | 2,080 | 186,200 | 12,475 | 639,000 | 47,925 | 117,300 | 10,909 | 706,000 | 76,248 | 76,584 | 145,683 | + | 69,099 | Gunnison |
| Hinsdale | 26 | 910 | 34 | 1,190 | 6,798 | 4,834 | 9,329 | 6,634 | 6,000 | 726 | 9,700 | 1,261 | 295,600 | 19,805 | 381,000 | 28,575 | ........ | ........ | 33,000 | 3,564 | 26,275 | 41,224 | + | 14,949 | Hinsdale |
| Jefferson | 432 | 15,120 | 138 | 4,830 | 73 | 52 | 55 | 39 | ........ | ........ | 500 | 65 | ........ | ........ | 200 | 15 | ........ | ........ | 2,000 | 216 | 15,172 | 5,165 | — | 10,007 | Jefferson |
| Lake | 27,235 | 953,225 | 23,150 | 810,250 | 243,474 | 173,137 | 379,513 | 269,876 | 130,300 | 15,766 | 282,000 | 36,660 | 6,703,700 | 449,148 | 9,901,000 | 742,575 | 6,688,000 | 621,984 | 11,023,000 | 1,190,484 | 2,213,260 | 3,049,845 | + | 836,585 | Lake |
| La Plata | 390 | 13,650 | 250 | 8,750 | 377 | 268 | 578 | 411 | ........ | ........ | 1,100 | 143 | ........ | ........ | 3,400 | 255 | ........ | ........ | ........ | ........ | 13,918 | 9,559 | — | 4,359 | La Plata |
| Larimer | 8 | 280 | ..... | ........ | 3 | 2 | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | 282 | ........ | — | 282 | Larimer |
| Mesa | ..... | ....... | ..... | ........ | 59 | 42 | ........ | ........ | 2,100 | 254 | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | 296 | ........ | — | 296 | Mesa |
| Mineral | 644 | 22,540 | 465 | 16,275 | 805,202 | 572,588 | 630,952 | 448,677 | 77,600 | 9,390 | 101,000 | 13,130 | 1,051,600 | 70,457 | 1,155,000 | 86,625 | ........ | ........ | 13,000 | 1,404 | 674,975 | 566,111 | — | 108,864 | Mineral |
| Montezuma | 218 | 7,630 | ..... | ........ | 741 | 527 | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | 8,157 | ........ | — | 8,157 | Montezuma |
| Montrose | 15 | 525 | 18 | 630 | 2,762 | 1,964 | 5,272 | 3,749 | 16,600 | 2,009 | 129,000 | 16,770 | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | 4,498 | 21,149 | + | 16,651 | Montrose |
| Ouray | 6,782 | 237,370 | 4,937 | 172,795 | 141,411 | 100,559 | 91,679 | 65,194 | 141,300 | 17,097 | 144,000 | 18,720 | 799,300 | 53,553 | 1,079,000 | 80,925 | 708,600 | 65,900 | 654,000 | 70,632 | 474,479 | 408,266 | — | 66,213 | Ouray |
| Park | 37,370 | 1,307,950 | 8,434 | 295,190 | 26,830 | 19,079 | 21,597 | 15,358 | 78,400 | 9,486 | 68,000 | 8,840 | 543,600 | 36,421 | 400,000 | 30,000 | 912,000 | 84,816 | 1,133,000 | 122,364 | 1,457,752 | 471,752 | — | 986,000 | Park |
| Pitkin | 1 | 35 | 2 | 70 | 286,131 | 203,471 | 302,386 | 215,030 | 1,000 | 121 | 2,600 | 338 | 629,800 | 42,197 | 686,000 | 51,450 | 284,000 | 26,412 | 408,000 | 44,064 | 272,236 | 310,952 | + | 38,716 | Pitkin |
| Rio Grande | 5,499 | 192,465 | 3,287 | 115,045 | 7,186 | 5,110 | 1,402 | 997 | 93,400 | 11,301 | 17,000 | 2,210 | 800 | 54 | ........ | ........ | ........ | ........ | ........ | ........ | 208,930 | 118,252 | — | 90,678 | Rio Grande |
| Routt | ..... | ....... | 2 | 70 | 28 | 20 | 495 | 352 | ........ | ........ | 3,000 | 390 | 700 | 47 | 11,030 | 825 | 4,800 | 446 | 64,000 | 6,912 | 513 | 8,549 | + | 8,036 | Routt |
| Saguache | 60 | 2,100 | 216 | 7,560 | 41,313 | 29,378 | 36,464 | 25,930 | 36,400 | 4,404 | 50,500 | 6,565 | 878,900 | 58,886 | 796,000 | 59,700 | 663,600 | 61,715 | 891,000 | 96,228 | 156,483 | 195,983 | + | 39,500 | Saguache |
| San Juan | 17,094 | 598,290 | 21,217 | 742,595 | 394,657 | 280,645 | 327,098 | 232,603 | 575,000 | 69,575 | 498,000 | 64,740 | 4,297,000 | 287,899 | 5,397,000 | 404,775 | 784,000 | 72,912 | 1,004,000 | 108,432 | 1,309,321 | 1,553,145 | + | 243,824 | San Juan |
| San Miguel | 23,451 | 820,785 | 20,204 | 707,140 | 315,820 | 224,583 | 210,763 | 149,876 | 78,800 | 9,535 | 142,000 | 18,460 | 3,436,700 | 230,259 | 4,149,000 | 311,175 | 780,000 | 72,540 | 2,426,000 | 262,008 | 1,357,702 | 1,448,659 | + | 90,957 | San Miguel |
| Summit | 1,502 | 52,570 | 857 | 29,995 | 40,801 | 29,014 | 43,529 | 30,954 | 11,800 | 1,428 | 27,000 | 3,510 | 1,189,200 | 79,676 | 1,047,000 | 78,526 | 1,705,400 | 158,602 | 2,736,000 | 295,488 | 321,290 | 438,472 | + | 117,182 | Summit |
| Teller | 104,455 | 3,655,925 | 45,105 | 1,578,675 | 15,660 | 11,136 | 7,643 | 5,364 | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | 3,667,061 | 1,584,039 | | 2,083,022 | Teller |
| Totals | 268,627 | $ 9,401,945 | 137,558 | $4,814,530 | 3,096,211 | $2,201,750 | 2,664,142 | $1,894,501 | 2,204,000 | $266,684 | 2,056,000 | $ 267,280 | 30,362,000 | $2,034,254 | 36,064,000 | $2,704,800 | 64,430,000 | $5,991,990 | 88,188,000 | $9,524,304 | $19,896,623 | $19,205,415 | — | $ 691,208 | |

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[1] Includes placer production.

Compilation by Chas. W. Henderson, U. S. Bureau of Mines.

# CONDENSED REVIEW OF MINING DISTRICTS BY THE FIELD INSPECTORS FOR 1943

## DISTRICT No. 1 by George Becker

District No. 1 comprises the northern and northwestern counties of the state. During the years the United States has engaged in the world war, the shortage of labor has forced the gold and silver mines to close down and cease to operate. The essential metals needed were copper, lead, zinc, tungsten, fluorspar and molybdenum and the counties that contained these metals were very active, with a limited supply of miners. The miners are all anticipating an early announcement from government sources removing the restrictions on the mining of gold.

**Boulder County**—The future for gold and silver mining in this county looks very favorable when things get back to normal and the miners can operate their mines as they see fit. During the war this county has been very active in producing tungsten in the Nederland District by stock piling low grade ore under government orders. The Boulder Tungsten Custom Mill, the Wolf Tongue mine and mill, the Vanadium Corporation of America mines and mills and several smaller mills operated continuously. In the Jamestown District, fluorspar was mined and milled with good results by H. M. Williamson and the General Chemical Company.

**Clear Creek County**—The future for the gold and silver mines in this county looks very good when things get back to normal and the miners can mine and operate their mines in their own way. This county was very active in producing gold and silver in the past and during the war the miners have been very active in producing lead, zinc and molybdenum. In and around Silver Plume, the Mendota and Smuggler mines produced the greater amount of lead and zinc, and the Molybdenum Corporation of America has been reconditioning the Urad mine and building a mill to handle molybdenum ores. There were also several small scale operators producing lead and zinc. The Joe Ruth Custom Mill and the Sam Huntington Custom Mill were operated most of the time from ore produced by small scale operators.

**Denver County**—The American Smelting and Refining Company operated their Arsenic and Cadmium Refinery continuously at full capacity. The Western Feldspar mill operated continuously during 1943. They grind and size a feldspar product which is shipped east for the manufacture of glass and porcelain.

**Gilpin County**—This county is one of the oldest producers in the state from the standpoint of both lode and placer mining, and was hit about the hardest of any when the government restricted the mining of gold and silver. The miners are anxiously waiting for the war to end and things get back to normal when labor will be plentiful and they can again work their gold and silver as they did in the past. There were a few lead and zinc mines operated on a small scale.

**Grand County**—This is one of the most promising mineral counties in the state considering the small amount of development work that has been done. The section lying north and west of Jones Pass for a radius of about ten miles square offers a good field for prospecting. The veins are large and strong and well defined fissures. The old mining district of Lulu in the northern part of the county is worthy of investigation and the geology is favorable for ore deposits.

**Jackson County**—This county is noted for its copper, lead and zinc deposits. Because it is inaccessible from smelters and railroad transportation, its mineral deposits have not been developed as they should have been. The Independence Mountain District in the northern part of the county shows a large area containing placer gold. The Old Teller Mining District is worthy of investigation. The fluorspar deposits are numerous and the spar is of the best quality. They are now being developed and are producing. One deposit is operated by the Western Fluorspar Company with a new mill having a capacity of 250 tons daily. The Kramer Mines, Inc., are developing through a shaft 100 feet deep, with good results.

**Jefferson County**—This county is noted for its large deposits of clay along the foot hills and the clay is of the best quality. Due to the shortage of labor this industry has not been as active as in the past. The brick plants in Denver get their supply of clay from the mines in this county and they manufacture a product from this clay that finds a market in all parts of the world.

**Larimer County**—The Manhattan Mining District which is located in the western part of the county, shows a number of strong and well defined fissure veins. In some places they form a network of veins or veinlets with marvelous surface showings in gold values indicating the existence of rich ore deposits. This district is worthy of investigation. In and around Laporte they operate several limestone quarries that supply the Great Western Sugar Company with limestone. The Boettcher Cement quarries and mill are also located near Laporte and are operated by the Portland Cement Company with a capacity of 2,000 barrels daily.

**Moffat County**—The northwestern section of this county is noted for its high grade copper desposits in and around Douglas Mountain. Some of these mines were operated as far back as 1861. About 25 miles west of Elk Springs in the Blue Mountain District there seems to be a large and extensive deposit of zinc carbonate. This is worthy of investigation. In the Timberlake District in the northern part of the county there is a large area showing values in placer gold. In the past these placers have been operated by draglines with washing and screening devices. A number of small scale operators using pick and shovel with sluice boxes and rockers met with good results.

**Routt County**—The Hahns Peak Mining District in the northern part of the county is among the oldest in the state. In and around the peak is a large area containing placer gold, which is worthy of investigation. The Greenville mine near Clark, operated by M. Franz, has been producing lead and zinc for the past year, with good results. There are also a number of gold and silver prospects in and around the Hahns Peak district that will stand investigation. In the Rabbit Ear Pass District there is a deposit of a fair grade of manganese.

**Summit County**—This county is noted for its rich and extensive placer gold deposits along the Blue River and the small creeks and gulches that are tributary to the upper section of this river. These placers were very active before the war, with good results. In the Kokomo District the Lucky Strike, Kimberly and Wilfley mines were very active in producing lead and zinc. In and around the Montezuma District, the Florado, Morgan, Shoe Basin, Rose, Silver Wing and New York were very active in producing lead and zinc, with the Plymouth Custom Mill to treat their low grade ore. In the southwest part of the county on the head of the Blue River, the Navy and Royal George tungsten mines were operated by Sheldon, Parker and Withers, with good results.

## DISTRICT No. 2 by Fred E. Theobald

District No. 2 comprises nineteen counties in the southeastern part of the state. The metals and minerals produced in this area have been an important factor in the prosecution of the war and will continue to be in demand when victory is won.

**Teller County**—Teller county is the most outstanding in this district so far as wealth from metals is concerned, and as gold is the principal product of her mines, has suffered most as a result of the gold mines' closing order by the United States Government. Much credit is due to such men as Oliver H. Shoup, Alfred H. Bebee, D. P. Strickler and Max Bowen for their efforts in saving at least a part of the mining industry in the Cripple Creek District. The conversion of a part of the Golden Cycle Mill for the treatment of lead and zinc ores and the necessity of using some ore of the type mined in the Cripple Creek District for the successful extraction of these metals, were perhaps the most important factors. With many of the miners volunteering for service in the armed forces, many inducted, and others seeking more remunerative jobs in war industries, the gold camp was faced with a serious shortage of manpower. All this has not discouraged the operators who are making every effort to keep their mines open and preparing them for increased production in the better days to come.

The Cresson, one of the large producers of the District, stopped production during the year on account of the labor shortage, but is taking advantage of the situation by retimbering its main shaft the entire depth and will be ready for heavy production when the war ends and the men return to the mines. Its well equipped machine shop and forging plant are working steadily on government contracts. Of vast importance to the future of the Cripple Creek District and subsequently the entire state, is the Carlton Drainage Tunnel. The completion of this six-mile tunnel to make connection with the bottom of the Portland shaft at a depth of 3,254 feet, was a great engineering feat and promises to extend the life of the district indefinitely. The present flow at the portal exceeds 5,000 gallons per minute and has drained a great part of the mineral bearing area. When operations are resumed, laterals will be run which will complete the drainage of the entire district. Costing more than a million dollars, this project was financed entirely by the Golden Cycle Corporation and reflects the company's confidence in the great possibilities of the District. The Ajax mine, operated by the Golden Cycle Corporation, promises to be one of the outstanding properties of the district. The shaft has been deepened more than 200 feet since the advent of the Carlton tunnel and very substantial ore bodies have been opened on the 2,800 foot level which is at present the bottom of the shaft. A systematic development program is being pursued and large ore reserves are being blocked out for future extraction. The United Gold Mines Company, formerly the largest shipper in the district, is operating several properties on a limited scale. The shortage of labor does not always permit a profitable operation but keeping the mines open for the future is very important. The Stratton Cripple Creek Mining and Development Company has maintained a small but steady production during the year, mainly from the Logan shaft where a considerable amount of better than average ore has been mined and shipped. Other properties which have been active during the year include the Rose Nicol, Patti Rosa, Grace Greenwood, Trail Tunnel, Anchoria Leland and Portland No. 1 and No. 2.

**El Paso County**—In El Paso County near Colorado Springs is located the Golden Cycle Mill, which was originally built for the treatment of gold ores and received the entire product of the Cripple Creek District mines as well as a large tonnage from other sections of the state. As a war measure a large part of the mill was converted for the treatment of lead and zinc ores and shippers from many mining districts in the state have taken advantage of the excellent milling facilities. El Paso County also produces a large tonnage of nonmetallics, including limestone, dolomite, potters clay, plastic and fire clays, shale and green stone. The Thomas & Brown lime burning plant at Manitou Springs is a year round operation and manufactures a number of different commercial lime products.

**Park County**—The Fairplay and Alma District in Park County produces gold, silver, lead, zinc, copper and tungsten. The Buckskin Joe mine operated its own mill and the balance of the ore produced in this area is shipped to Colorado Springs or Leadville. All placer gold mining has been closed for the duration.

**Douglas County**—In Douglas County, feldspar, limestone, fire clay, plastic clay and silica sand are produced.

**Custer County**—Custer County has been the scene of considerable activity during the past year in the search for lead and zinc ores. Much prospecting and development was done with some success. In addition to lead, zinc, gold, silver and copper Custer County produced a large amount of vermiculite, used for insulating purposes.

**Fremont County**—Fremont County produces lead, zinc, limestone, dolomite, ganister, feldspar, mica, gypsum, monumental stone, travertine, fire clays, beryl and vermiculite. The Colorado Portland Cement Company's plant is located here and manufactures about 720,000 barrels of cement per year from limestone, shale and gypsum, produced in its own quarries. A large tonnage of dolomite and ganister is shipped to the Colorado Fuel & Iron Company's steel mill at Pueblo. Great quantities of limestone were shipped to various sugar refineries and to the smelter at Leadville. The greater part of the fire clay mined in this locality is used by The Diamond Fire Brick Company in their plant at Canon City. A new plant for the exfoliation of vermiculite ore is being constructed in Florence and the supply will come principally from deposits in Fremont and Custer Counties.

**Huerfano, Pueblo, Otero, Las Animas and Bent Counties**—These counties produce fire and plastic clays, shale, silica sand, gypsum and building stone. The clays and shales are used largely by the brick and tile manufacturing plants at Pueblo and Trinidad. A considerable amount of the fire clay is calcined and shipped to the various zinc smelters. The gypsum is used mostly by the Portland Cement Company as a retarder in the manufacture of cement and for plaster. Practically all of the mica mined in this district is shipped to the grinding plant at Pueblo. The principal use for ground mica is in the manufacture of roofing materials. The production of nonmetallics in this district is an important industry and all indications point to increased activity in their development.

## DISTRICT No. 3 by R. J. Murray

War and Invasion have created an ever increasing demand for many of our metals and minerals so essential to the winning of this war. It is fortunate, indeed, that this great nation has been able to provide in vast amounts the necessary metals for armament and other uses. This district has supplied our country and our fighting men in time of need with molybdenum and vanadium alloys, together with other necessary metals which are namely lead, zinc, copper and fluorspar.

While the number of mines operating in this district has been greatly reduced due to gold restrictions, the amount of manual labor heretofore absorbed in gold mining operations has been turned to the increasing of the total number employed in mining of strategic minerals in this district. Many of the larger mines have operated with a shortage of experienced labor. However, in spite of the number of inexperienced men employed, they have done valiant work in keeping their accident rates to a minimum, and I wish to express my sincere thanks to all the mining men and their employees for the commendable work they have done in these trying times.

**Chaffee County**—The Hawkeye mine is producing a fair tonnage of low-grade lead oxide ore which is being shipped to the Leadville smelters. The Garfield mine has been shipping a considerable tonnage of zinc-lead sulphides since extending a new shaft below the tunnel level.

Fluorspar mining has been very active in this county for the past several years with large tonnages being produced by the Colorado Fluorspar Company, the American Fluorspar Company, the Kramer Mines Incorporated, the Aksarben, the Chaffee County Fluorspar Company and several other small operators. The Chaffee County Fluorspar Company has recently completed a new mill building and are at present installing equipment. Practically all of the fluorspar tonnage produced in the Colorado Fluorspar mines is processed at their mill. The ores from the American Fluorspar and the Aksarben are sent to the Shapley Mill, while the Kramer Mines Incorporated are milling their ores at the company's mill. Considerable crude ores are shipped from these operations at various times.

A new find has been reported in the Clear Creek district approximately 29 miles northwest of Buena Vista, where it is said a showing of three feet of spar is opened in two or three places. A tunnel, some 30 or 40 feet, has been driven on one vein of spar three feet in width. Some beryl ore has been shipped from the Mica Beryl and Rock King mines.

The Hayden Mining Company, a producer of rare and strategic metals, is building a mill in Browns Canon area for the Monarch Mineral Products Company. This plant will be from 10 to 30 tons capacity and will operate on lepidolite and microlite ores from the Brown Derby mine in Gunnison County.

The C. F. & I. Quarry located at Monarch is producing 1,200 tons of limerock daily for the company's steel plant at Pueblo. Rock is broken by deep well drill holes. A Marion-type electric shovel handles this tonnage on two eight-hour shifts. Rock is hauled from the quarries by one 22-ton truck and two 11-ton trucks. The various granite quarries in this district have an ample footage of monumental stone ready for future marketing, while the Salida Granite Company's dressing plant is operating with a reduced force of stone cutters.

Some work has been done towards reopening the Wolfrom tunnel located in a district long inactive. A badly needed new road for a necessary approach to the mine is being graded at this time.

Some prospecting work has been done within the past year in Greens Gulch and the Turret mining district, while prospectors are known to be operating on Shavano and other mountains adjacent to this vicinity.

**Conejos and Costilla Counties**—While not yet classed as mining counties they have the veteran prospector seeking new finds throughout their boundaries, and we hope they will be successful and add new mining districts to our state. Turquoise is being mined in this county.

Some placer mining was carried on in these counties previous to the stoppage of gold production.

**Eagle County**—The Eagle Mines, Empire Zinc Division, employ 500 or more men in the mine and mill inclusive and are producing 800 to 1,000 tons of lead-zinc-copper sulphides. Approximately four-fifths of this tonnage goes to their underground mill, while the crude ore tonnage is shipped directly to Utah. The outlet for crude and concentrates is through Belden Canon via the D. & R. G. W. Railroad.

This company has recently completed one of the largest and most up-to-date pumping stations I have ever seen. It is located at the bottom of 20-10 incline. A new switching station 400 feet long and 50 feet wide has also been completed at this level. A new air-way system is nearing completion which will greatly reduce the high temperature in the stopes where ores are being mined. What was formerly the large company boarding house has been remodeled and made into apartments for the company staff employees. A new hospital has been tentatively planned for the past several years to replace the old and more or less obsolete one now in use. This company maintains a number of first-aid men among their employees and also two company safety inspectors.

The ban on gold mining has caused a complete cessation in the smaller mines formerly operated in Belden Canon.

**Garfield County**—The Grey Eagle mine located on Elk Creek has been inactive for some time due to the restrictions on gold mining. The Glenwood quarry has made its usual shipments of lime rock to the Holly Sugar Corporation plant at Holly.

The U. S. Vanadium Corporation's mine operations on East Rifle Creek and its mill east of Rifle have been very active for the past two or more years producing and milling probably the largest individual tonnage of vanadium in the nation. A large campaign of drilling has been done along the immense ore bodies with every indication for a long-time production of vanadium ores in this district.

The Garfield mine, also in East Rifle Creek, has been producing a fair tonnage of vanadium ores which are milled at the U. S. Vanadium Corporation's mill. Work has stopped in the vanadium mines north of Meeker within the past year. A great many prospectors are said to be in the field looking for vanadium sandstones throughout this county.

**Gunnison County**—The part of Gunnison County lying within the confines of District No. 3 sustained a state-wide loss when the Proctor Vermont Marble Company, owners of the famous marble quarries at Marble, Colorado, decided to cease work at this quarry and junk the vast equipment which included railroad, dressing plant, and quarry machinery.

A small amount of mining in the Crystal area is said to be getting under way at this time.

**Lake County**—The Climax Molybdenum mine, the largest producer of molybdenum ores in the world, has during this year mined and milled more than 20,000 tons of crude ores daily, and is one of the largest underground metal operations in the nation.

This company employs its own first-aid instructors, several mine inspectors, and maintains a modern hospital for the treatment of their employees. A large auditorium for motion picture shows, dances, and many other forms of entertainment and relaxation is available to its employees. The auditorium, boarding house, large rooming house, and all other industrial buildings are built of fireproof material.

The Resurrection Mining Company operating through the Yak tunnel and Resurrection shaft, are sending 300 tons or more daily of lead-zinc-copper sulphides to their mill adjacent to the Yak tunnel, and an additional 300 tons daily of custom ores from various mines and dumps are also being milled at this plant.

The famous Ibex group of mines operating nearly a half century, is still producing a fair quota of mixed ores of gold, silver, zinc, lead, and copper. The Dolly B mine, a consistent although not a large shipper of ores, is producing a fair tonnage of lead carbonate ores, together with occasional shipments of sulphide ores. The Valley mine, another consistent producer of lead oxide ore, has during the past year and to date shipped several thousand tons of this ore. The Adelaide is shipping an occasional amount of oxide lead ores.

The New Monarch lease on the Forbes tunnel is shipping a fair tonnage of oxide lead ores to the A. V. Smelter at Leadville. Other small mining operators in this and other districts throughout Leadville are adding their quota of ores collectively, and they are sending them as their compliment of lead for Hitler, Tojo and what is left of Mussolini.

Thousands of tons of dump ore from the various mines in Leadville are being separated at the Resurrection Mill, the California Gulch No. 1 and No. 2 Mills, the Hamm Mill, and the Large Tonnage Sink Float Mill.

Some mining activity is noticeable in the Twin Lakes and Birdseye areas within confines of the Leadville district. The A. V. Smelter is running one blast furnace on practically all Colorado ores.

**Mineral County**—Creede, formerly known as the Silver Camp of Colorado, is now producing a fair quota of lead, zinc, and copper in their ores, which are coming from the many famous old producing mines where Silver was King. The No. 5 Amethyst tunnel has been extended under the old properties to enable the operators to mine the ores at a much lower depth.

The Commodore No. 5 tunnel is being pushed ahead at a much lower depth to make available the veins, or ore bodies, known to exist at this level. A 110-ton capacity mill, owned and operated by the Creede Leasing Company, handles the entire output of mill ores in the Creede district. The C. F. & I. Fluorspar mine at Wagon Wheel Gap is sending their entire output of milled and crude spar to the C. F. & I. plant at Pueblo.

**Pitkin County**—The Midnight Mining Company within the war period has shipped two or more million pounds of refined lead and zinc through milling their silver sulphide ores and is using a very large share of the miners employed in the Aspen district. Motorized haulage from mine to mill more than a mile distant has greatly facilitated the handling of ores, waste, and supplies. New tailings ponds are planned this summer as snow slides and deep snows have been a source of trouble for this operation during the past year.

The Herron Brothers of Aspen have within the past year or more constructed a mill on their Mollie Gibson property. The mill is 150 tons capacity. Ores are trucked from the Mollie Gibson and other dumps in the Aspen area. Shipments of lead and zinc concentrates with a silver content are being sent out at regular intervals from the mill.

The Lenado mining district 24 miles from Aspen and inactive for many years, has been reopened by Rohlfing and Vanderwilt. The Varney tunnel is the scene of this operation and has been retimbered to an incline shaft 400 feet from the portal. The shaft is some 225 feet deep and was the source of ore shipments when last operated in 1923. The ores were lead-zinc sulphides from which fair tonnages were shipped.

Several prospectors moved into the Ashcroft district this summer and are active in searching for new mines in this forgotten mining area. Rumor has it that work will be started in the Porphyry Mountain area.

**Rio Blanco County**—This county in 1943 and early in 1944 produced a fair tonnage of vanadium ores from the vanadium mining district some 18 or 20 miles north of Meeker, Colorado. These ores were trucked to the U. S. Vanadium Company's mill at Rifle, more than 60 miles distant. Work in this section has been discontinued for the present. Some prospectors and others are still looking this vast area over and, no doubt, they will some time uncover another vanadium-producing belt.

**Rio Grande County**—The Summitville Consolidated Mines Incorporated, now known as the Gold Links Mine, is operating under new management and is consistently sending a small tonnage of ore to their mill. These operations are carried on at an elevation varying from 11,600 feet to over 12,000 feet. Some new development work on a copper vein opened a year or two ago is being thoroughly prospected for its copper content; while some copper bearing oxide dumps are being milled for this content.

**Saguache County**—The Costello Lease on No. 2 and No. 3 tunnels of the Rawley group is producing a fairly good tonnage of sulphide ore for silver, copper, zinc and lead content. This work is being done through Rawley No. 3 tunnel. The Eastman

Lease on No. 1 tunnel is producing a small but steady tonnage of oxide lead ore.

The Erie and Superior claims were the largest producers of lead-zinc sulphides in the district until midwinter when operations stopped until spring weather cleared the roads of snow. Work began recently on new prospecting and development passed over while their large ore bodies were being mined.

The Rawley No. 12 tunnel was retimbered during 1943 and new rails laid to the shaft several thousand feet from the portal. A compressor and other equipment were installed preparatory to developing known zinc-lead sulphide ores.

The Warwick group through its several tunnels is producing a fair tonnage of oxide ores for silver, lead, zinc; also some sulphide ores for silver, lead, zinc, and copper content. A large tonnage was shipped from the Bonanza, Cocomongo and other dumps in the Bonanza district during the past year.

The St. Louis mine shipped considerable carbonate lead ores during late 1943. Since that time and until within the past few months, only the water was kept pumped out of the lower workings. Recently, however, new prospecting has opened up some lead carbonate ores for future shipments.

The Eagle-Hawk group inactive since 1922 is being opened for examination by the Barium Steel Company. The shaft is in a collapsed condition and must be retimbered for some distance before the underground examination can be made.

## DISTRICT No. 4 by D. C. McNaughton

War demands have changed the picture of the mining industry in District No. 4 considerably during 1943. Properties whose production was principally gold have either ceased operations for the duration or turned their attention from gold-bearing ores to veins of other minerals, as copper, lead and zinc.

The great carnotite deposits of western Montrose, San Miguel, and Mesa Counties produced quantities of vanadium, used in the manufacture of alloy steel, also of radio-active uranium, which has various war-time uses.

Tungsten, manganese, platinum, molybdenum and beryllium are among the products of District No. 4.

**Dolores County**—Of outstanding importance in this county, is the Rico-Argentine, which operated its mine and mill continuously during 1943, producing large tonnages of lead, zinc and copper.

This company has consolidated several famous old mines under one management. An extensive program of diamond drilling was carried on.

There was also considerable vanadium mined in this county. There were some leasing operations and considerable prospecting during the year.

**Hinsdale County**—Besides mining and milling lead and zinc ores, considerable prospecting and sampling was done in this county during 1943.

**Gunnison County**—Considerable lead and zinc ore was mined in the White Pine district by the Callahan Zinc-Lead Company. Some silver, lead and zinc were produced from the Tincup Area. Considerable feldspar was quarried in this county by the Colorado Feldspar Company, and shipped to their mill in Canon City. Vermiculite was mined in the Powderhorn and other districts of the county. Manganese was mined in the Powderhorn, Taylor Park, Spring Creek, and other areas. The famous Carter Gold Mines on Quartz Creek, did not operate during 1943, as their product is principally gold. Considerable prospecting, exploring, sampling, etc., was carried on in Gunnison County.

**La Plata County**—The Reduction Plant of the Metals Reserve Company (U. S. Vanadium Corporation, Agent), operated continuously, at full capacity, during 1943 on vanadium ores from Utah, Colorado and New Mexico. A tailings plant was constructed early in 1943 for the extraction of uranium from mill tailings. The product from this plant was shipped to the refining plant at Grand Junction, Colorado. Vanadium deposits were developed about 12 miles northwest of Durango, and ore was shipped to the Metals Reserve Company's Reduction Plant at Durango. Considerable prospecting and exploration was carried on in the county during 1943.

**Mesa County**—Great interest was shown in the mining, developing and prospecting of carnotite and other ores in various parts of this county, particularly in the Calamity Mining District. The Reduction Plant of the Gateway Alloys, Incorporated, operated the greater part of the year, sending their product to the Metals Reserve Company. A vanadium refining plant was constructed in 1943, about three and one-half miles south of Grand Junction, which treats concentrates from tailings sludge plants at Uravan and Durango.

**Montezuma County** — Operations in this county consisted mainly of prospecting, exploration and sampling. Profitable gold mines of the county, which operated in previous years were inactive during 1943.

**Montrose County**—Both the U. S. Vanadium Corporation at Uravan and the Vanadium Corporation of America at Naturita operated their mines and mills at full capacity during the year, on ores from their respective mines in various parts of the county and elsewhere. A tailings plant was constructed in 1943, one mile north of Uravan, for the extraction of uranium from mill tailings. The product from this plant was shipped to the refining plant at Grand Junction. A large program of diamond drilling, prospecting and development was carried on during the year.

**Ouray County**—Mining and milling in this county maintained a steady production of essential metals for the war effort. The King Lease on the Camp Bird, Limited, operated continuously during the year. The G. A. Franz Interests operated mines, and milled their ores together with custom ores, at their Banner-American Mill near Ouray. Early in 1943, the Stiers Construction

Company, contractors of St. Louis, Mo., started advancing the Treasury Tunnel on Idarado Project AA-229. This property is under lease to Metals Reserve Company (Sunshine Mining Company, of Kellogg, Idaho, Agents). This project will, when completed, intersect the Black Bear vein of that property, at depth. Also various other properties in different stages of development operated most of the year. Several of them shipped their ores to custom mills and smelters. In 1943, the Hayden Mining Company of Colorado Springs, shipped a considerable tonnage of manganese to the Metals Reserve Stock-pile at Salida, Colorado. This manganese was taken from a bed within the city limits of Ouray, Colorado. This county also maintained a steady program of prospecting, exploration, etc., during the year.

**San Juan County**—This county is of great importance to the war effort. Notable in this county are the large veins of both high grade and base metal ores. Ores mined, milled and shipped to various smelters and custom mills included gold, silver, copper, lead, zinc, tungsten and manganese. The Shenandoah-Dives Mining Company operated its mines and mill continuously during the year, and large tonnages of copper-lead and zinc concentrates were shipped to smelters. Offices of this company are in Kansas City, Mo., and Silverton, Colo. The Pride of the West, Inc., also operated its mine and mill throughout the year. They also shipped considerable tonnages of silver-copper-lead and zinc concentrates to the smelters. Their offices are in the Equitable Building, Denver, Colo. The Highland Mary Mines, Inc., whose main office is at 7000 W. 64th Ave., Arvada, Colo., operated for the greater part of the year and mined and milled a considerable tonnage of silver-copper-lead concentrates. The Fairview Manganese Mine, near Silverton, shipped considerable tonnage to Metals Reserve Company, Salida, Colo. This property is operated by Gustavus Sessinghaus and associates of Denver, Colo. The Lark Lease operated part time and shipped considerable tonnages of copper, lead, zinc and lead carbonates to various custom mills and smelters. This property is operated by V. H. Steel and associates of Silverton, Colo. A large program of prospecting and development was carried on in a score of smaller properties in various parts of the county. Considerable tonnages of copper, lead and zinc ores were shipped to various custom mills and smelters. Various amounts of tungsten ores were also mined in this district.

**San Miguel County**—This county continues to be outstanding in mining large tonnages of strategic ores containing the various metals and non-metals, which contribute greatly to the war effort. The Telluride Mines, Inc., operated their mines and mill continuously during the year and shipped large tonnages of lead and zinc concentrates. Company offices are located at Telluride, Colo. The Alta-St. Louis Mining Company also operated their mines and mill throughout the year and shipped considerable tonnages of copper-lead concentrates. Their offices are Denver and Ophir, Colo. In Lower San Miguel Mining District of this county, large tonnages of carnotite ore were mined on properties owned or controlled by Vanadium Corporation of America, U. S. Vanadium Corporation and A. F. Sitton of Dove Creek, in Dolores County, Colo., and others. They milled their ores at the reduction plants of the Metals Reserve Company (U. S. Vanadium Corporation, Agent), at Durango, the Vanadium Corporation of America Mill near Naturita and the U. S. Vanadium Corporation Mill at Uravan, Colo. The North Continent Mines, Inc., operated their various vanadium mines throughout the year and milled their ores at the mill of the Metals Reserve Company (U. S. Vanadium Corporation, Agent), at Durango, Colo.

Vanadium ores purchased by Metals Reserve Company from various large and small producers, were stockpiled at Durango, Dove Creek and Gateway, Colo. Considerable manganese was shipped from the Big Mack Group, located 30 miles southwesterly from Norwood, Colo., in Klondike Mining District, operated by Charles Fairlamb and associates, whose address is Telluride, Colo. Various amounts of tungsten were also mined in this vicinity. Besides the above activities, considerable prospecting and exploration was carried on in various parts of this county.

# HISTORICAL NOTE

The Bureau of Mines of the State of Colorado was established by an act of the Tenth General Assembly, approved March 30, 1895. This act repealed a previous act creating an "Inspector of Metalliferous Mines," which was passed in 1889. The Bureau of Mines law established the office of Commissioner of Mines, provided for in the State Constitution, and charged him, among other things, with the supervision of metal mine inspection and the enforcement of laws relating to safety and health in metal mines. Subsequently this was broadened to include "any ore mill, sampling works, smelter, metallurgical plant, rock quarry, clay pit, railroad tunnel, rock excavation or mine of whatsoever kind or character except coal mines." The Commissioner of Mines was also charged "as he has opportunity and means" to collect mineral specimens and exhibit the same, to collect books relating to mining and geology, to collect and preserve data regarding mining methods, mining costs, milling, metallurgy, geology, mineral deposits of all kinds, and so on. Aside from the purchase of the Elsner collection of minerals, very little "opportunity and means" has been granted to the Commissioners for anything except inspection work. A strong effort is being made at this time not only to make mining as near absolutely safe as possible but to help and encourage it in every legitimate way possible. The present activities of the Bureau of Mines are treated elsewhere in this report.

## COMMISSIONERS OF MINES

| | |
|---|---|
| Harry A. Lee | May 11, 1895-May 10, 1903 |
| E. L. White | May 10, 1903-May 10, 1907 |
| T. J. Dalzell | May 10, 1907-May 10, 1911 |
| T. R. Henahen | May 10, 1911-May 10, 1915 |
| Fred Carroll | May 10, 1915-June 1, 1919 |
| Horace F. Lunt | June 1, 1919-June 1, 1923 |
| John T. Joyce | June 1, 1923-June 1, 1927 |
| John T. Joyce | June 1, 1927-June 1, 1931 |
| John T. Joyce | June 1, 1931-June 1, 1935 |
| John T. Joyce | June 1, 1935-June 12, 1939 |
| Edward P. Arthur | June 12, 1939-Aug 26, 1943 |
| Fred Jones | Sept. 27, 1943 |

Edward P. Arthur, Commissioner of Mines, was killed by accident August 26, 1943, while making an inspection trip for the Bureau of Mines. His death was keenly felt by his friends and mining men.

# PUBLICATIONS OF THE BUREAU OF MINES

## BULLETINS

Bulletin No. 1, Recommendations for Safety Appliance in Mining, Harry A. Lee, Commissioner of Mines, 1896.

Bulletin No. 2, Precious Metal Production for the Year 1898, Harry A. Lee, Commissioner of Mines, 1899.

Bulletin No. 3, Mining Laws, Relative to Bureau of Mines Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1899.

Bulletin No. 4, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1901.

Bulletin No. 5, Precious Metal Production, Harry A. Lee, Commissioner of Mines, 1902.

Bulletin No. 6, Regulations Relative to the Construction, Equipment and Operation of Metalliferous Mines, Mills and Metallurgical Plants, Recommendations and Mineral Production for 1905, E. L. White, Commissioner of Mines, 1906.

Bulletin No. 7, Federal and State Laws Relating to Mining, Fred Carroll, Commissioner of Mines, 1916.

Supplement to Bulletin No. 7, Mining Laws Enacted by the Twenty-first General Assembly, Fred Carroll, Commissioner of Mines, 1917.

Supplement No. 2 to Bulletin No. 7, Amendments to the Mining Laws Enacted by the Twenty-second General Assembly, Horace F. Lunt, Commissioner of Mines, 1919.

Supplement No. 3 to Bulletin No. 7, Amendments to Laws Relating to Mining Enacted by the Twenty-third General Assembly, Horace F. Lunt, Commissioner of Mines, 1921.

Supplement No. 4 to Bulletin No. 7, Amendments to Laws Relating to Mining Enacted by the Twenty-fourth General Assembly, Horace F. Lunt, Commissioner of Mines, 1923.

Bulletin No. 8, The Oil Shales of Northwestern Colorado, Horace F. Lunt, Commissioner of Mines, 1919.

Bulletin No. 9, Mine Safety Standards, Horace F. Lunt, Commissioner of Mines, 1920. Out of print, now embraced in Bulletin No. 11.

Bulletin No. 11, Federal and State Laws Relating to Mining, John T. Joyce, Commissioner of Mines, 1931.

Bulletin No. 12, Mining Laws of Colorado, Edward P. Arthur, Commissioner of Mines, 1942.

## REPORTS

Report of Bureau of Mines, Colorado, from its establishment in May, 1895, to November 30, 1896, Harry A. Lee, Commissioner of Mines, 1896.

Report for the Year 1897, Harry A. Lee, Commissioner of Mines, 1898.

Report for the Year 1898, Harry A. Lee, Commissioner of Mines, 1899.

Biennial Report for the Years 1899-1900, Harry A. Lee, Commissioner of Mines, 1900.

Biennial Report for the Years 1901-1902, Harry A. Lee, Commissioner of Mines, 1903.

Biennial Report for the Years 1903-1904, E. L. White, Commissioner of Mines, 1905.

Biennial Report for the Years 1905-1906, E. L. White, Commissioner of Mines, 1907.

Biennial Report for the Years 1907-1908, T. J. Dalzell, Commissioner of Mines, 1909.

Biennial Report for the Years 1909-1910, T. J. Dalzell, Commissioner of Mines, 1911.

Biennial Report for the Years 1911-1912, T. R. Henahen, Commissioner of Mines, 1913.

Biennial Report for the Years 1913-1914, T. R. Henahen, Commissioner of Mines, 1914.

Biennial Report for the Years 1915-1916, Fred Carroll, Commissioner of Mines, 1916.

Biennial Report for the Years 1917-1918, Fred Carroll, Commissioner of Mines, 1919.

Annual Report for the Year 1919, Horace F. Lunt, Commissioner of Mines, 1920.

Annual Report for the Year 1920, Horace F. Lunt, Commissioner of Mines, 1921.

Annual Report for the Year 1921, Horace F. Lunt, Commissioner of Mines, 1922.

Annual Report for the Year 1922, Horace F. Lunt, Commissioner of Mines, 1923.

Annual Report for the Year 1923, John T. Joyce, Commissioner of Mines, 1924.

Annual Report for the Year 1924, John T. Joyce, Commissioner of Mines, 1925.

Annual Report for the Year 1925 was fully prepared but because of lack of funds was not printed. The manuscript is on file in the office of the State Bureau of Mines.

Annual Report for the Year 1926, John T. Joyce, Commissioner of Mines, 1927.

Annual Report for the Year 1927, John T. Joyce, Commissioner of Mines, 1928.

Annual Report for the Year 1928, John T. Joyce, Commissioner of Mines, 1929.

Annual Report for the Year 1929, John T. Joyce, Commissioner of Mines, 1930.

Annual Report for the Year 1930, John T. Joyce, Commissioner of Mines, 1931.

Annual Report for the Year 1931, John T. Joyce, Commissioner of Mines, 1932.

Annual Report for the Year 1932, John T. Joyce, Commissioner of Mines, 1933.

Annual Report for the Year 1933, John T. Joyce, Commissioner of Mines, 1934.

Annual Report for the Year 1934, John T. Joyce, Commissioner of Mines, 1935.

Annual Report for the Year 1935, John T. Joyce, Commissioner of Mines, 1936.

Owing to lack of funds the 1936 Annual Report of the State Bureau of Mines was not published.

Annual Report for the Year 1937, John T. Joyce, Commissioner of Mines, 1938.

Owing to lack of funds the 1938 Annual Report of the State Bureau of Mines was not published.

Annual Report for the Year 1939, Edward P. Arthur, Commissioner of Mines, 1940.

Annual Report for the Year 1941, Edward P. Arthur, Commissioner of Mines, 1942.

At the time this report goes to press, there are available for distribution copies of the Annual Reports for 1921, 1922, 1926, 1928, 1932 and 1941. The 1929, 1930, 1931, 1933, 1934, 1935, 1937 and 1939 Annual Reports are out of print. The publications not mentioned in this paragraph are exhausted, but copies may be consulted in many of the public, state and college libraries throughout the country.

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Note—The Colorado Geological Survey has published a number of geological reports and maps, a list of which may be obtained from the head of the Geology Department of the University of Colorado, Boulder, Colorado.

# FATAL ACCIDENTS, 1942

**Underground:**

January 7, Ray G. Brown, of Dumont, age 38, married, timberman, employed by the Red Elephant Mine, of Idaho Springs, Clear Creek County, went into a chute to clean out the muck. Loose rock rolled down from the sides of chute onto him, causing injuries from which he died January 12. Carelessness of injured and violation of safety rule.

January 9, Albert Van Arsdale, of Silverton, age 34, widower, chute puller, employed by Pride of West, Inc., Silverton, San Juan County, was pulling chute. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 9, Frank Pacotti, of Silverton, age 28, single, trammer, employed by Pride of West, Inc., Silverton, San Juan County, was tramming on third level. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 9, Claude Pacotti, of Silverton, age 24, single, miner, employed by Pride of West, Inc., Silverton, San Juan County, was staging up to drill in chute pocket. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 9, Oscar E. Nelson, of Silverton, age 45, married, miner, employed by Pride of West, Inc., Silverton, San Juan County, was timbering a raise. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 9, John Aldrich, of Silverton, age 26, married, trammer, employed by Pride of West, Inc., Silverton, San Juan County, was cleaning stope. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 9, Howard M. Atkins, of Silverton, age 37, married, miner, employed by Pride of West, Inc., Silverton, San Juan County, was staging up to drill in chute pocket. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 9, Floyd Holston, of Silverton, age 22, married, trammer, employed by Pride of West, Inc., of Silverton, San Juan County, was tramming on third level. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 9, Frank Moser, of Silverton, age 25, single, miner, employed by Pride of West, Inc., Silverton, San Juan County, was timbering in a raise. Surface buildings caught fire and smoke entered mine causing suffocation. Accidental.

January 14, John P. Brownfield, Telluride, age 21, single, miner, employed by the Veta Mines, Inc., Telluride, San Miguel County, was coming down ladder off shift when he apparently slipped and fell to level below. Killed instantly. Carelessness of injured and violation of safety rule.

February 28, George G. Lane, of Boulder, age 24, married, machineman, employed by the Golden Harp Mining and Milling Syndicate, Boulder, Boulder County, had drilled nine holes and loaded same with power. A V-shaped rock with slips not visible, which could not be detected by sounding, fell from hanging wall and struck Lane. He died from injuries the same day.

March 3, Mark Basta, of Alma, age 45, married, machineman, employed by The London Mines and Milling Company, Alma, Park County, was drilling a round of holes and loaded same with powder and fuse. After spitting four or five holes there was a premature explosion and Basta was found dead on top of bulkhead over manway. Safety devices failed to function.

March 7, Ray Kinder, of Palisade, age 46, married, employed by Federal Reclamation Project Cameo No. 3, Grand Junction, Mesa County, was killed by fall of rock weighing 200 pounds. Unavoidable accident.

March 24, Don Singleton, of Leadville, age 26, married, jiggerboss, employed by the Climax Molybdenum Company, Climax, Lake County, had gone up under a hangup in chute to place a bundle of powder. The hangup came in pinning him against chute and the bundle of powder sticks exploded, killing him. It cannot be definitely stated whether Singleton pulled the spitter string or whether the falling rocks pulled the spitter. Unavoidable accident.

April 2, Frank F. Botts, of Salida, age 32, single, machineman, employed by Kramer Mines, Inc., of Salida, Chaffee County, was mucking out when helper's pick hit a missed right hand lifter, causing an explosion and instant death. Lack of mining experience.

April 2, Bliss De Angeleno, age 21, single, machineman's helper, employed by Kramer Mines, Inc., Salida, Chaffee County, was mucking out when pick hit a missed lifter, causing an explosion and instant death. Lack of mining experience.

April 15, Oscar Leonhardy, of Leadville, age 33, married, loader, employed by Climax Molybdenum Company, Climax, Lake County, was barring rock at the cap and slipped and fell into chute. Large rocks fell on his chest crushing him. Unavoidable accident.

June 18, Harry Ray Palmer, of Minturn, age 35, married, assistant mine shift boss, employed by Empire Zinc Company, of Gilman, Eagle County, was struck by a rock from a loaded hole which exploded prematurely. Unavoidable accident.

July 18, C. A. Heyn, of Ward, age 56, single, copartner on property of Heyn and Mott, of Ward, Boulder County, was barring down when large rock fell on him. Death was instantaneous.

August 17, Arthur James Bush, of Cortez, age 49, married, miner, employed by United States Vanadium Corporation, of Uravan, Montrose County, was killed by rock which fell from the side of an open cut stope. Unavoidable accident.

September 3, Walter Corbin, of Minturn, age 42, widower, miner, employed by Empire Zinc Company, of Gilman, Eagle County, was retimbering when the ground over him caved in, knocking away a lagging over him. While trapped fine zinc sand covered him and he suffocated. Unavoidable accident.

September 3, Ralph Ginther, of Eagle, age 20, single, shoveller, employed by Empire Zinc Company, of Gilman, Eagle County, was helping retimbering when the ground over him caved in, knocking away a lagging over him. While trapped fine zinc sand covered him and he suffocated. Unavoidable accident.

September 4, Jim Boyd, of Leadville, age 35, married, jigger-boss, employed by Climax Molybdenum Company, of Climax, Lake County, had placed a stick shot and was starting down raise when a rock fell hitting him in the back, knocking him down raise where his head struck a large rock, killing him. Unavoidable accident.

September 9, William Thomas Carter, of Victor, age 70, marmarried, leaser, employed by United Gold Mines Company, of Cripple Creek, Teller County, was filling tram car when several tons of rock from stope above fell, causing lacerations and internal injuries resulting in death. Death resulted September 14. Unavoidable accident.

November 18, Benton F. Queen, of Telluride, age 27, married, miner, employed by Telluride Mines, Inc., of Telluride, San Miguel County, was drilling when slab from back of stope fell striking him on back of head causing instant death. Unavoidable accident.

December 30, Herbert Hobson, of Silverton, age 49, single, motorman, employed by Shenandoah-Dives Mining Company, of Silverton, San Juan County, was operating trolley locomotive which left rails on curve, pinning him between motor and wall causing injuries which resulted in death January 18, 1943. Accidental.

**Shaft:**

June 19, John George James, of Cripple Creek, age 50, leaser, employed by the Elkton Company, of Cripple Creek, Teller County, was retimbering when collar of shaft caved in causing him to fall about 35 feet to bulkhead and then slide 35 feet to muck pile. Carelessness of injured and violation of safety rules.

October 8, Clarence Jacobson, of Leadville, age 25, single, cager, employed by Resurrection Mining Company, of Leadville, Lake County, was mucking at bottom of shaft when brakes on hoist slipped, dropping cage on his head and shoulders, crushing him. Failure of company to enforce safety rules and negligence on part of employee in not noticing safety rail under skip.

December 11, Ralph Fish, of Salida, age 21, married, hoistman, employed by Colorado Fluorspar Company, of Salida, Chaffee County, had just finished climbing down ladder in shaft when rock fell on him severing spine. Unavoidable accident.

**Surface:**

January 8, Leroy J. Rogers, of Cripple Creek, age 32, married, dump leaser, employed by the Elkton Company of Cripple Creek, Teller County, was loading a truck with ore. A frozen crust had formed on the dump and this overhanging crust fell, crushing Rogers. Violation of safety rule.

February 5, Herman Dahlke, of Nucla, age 44, married, hoistman, employed by the United States Vanadium Corporation, of Uravan, Montrose County, was dumping ore from mine into ore bin. Ore did not discharge and the tipped body of car fell back. The car derailed and entire car pinned employee at chest causing injuries from which he died the same day.

April 30, William Snell, of Leadville, age 22, married, whistlepunk, employed by Climax Molybdenum Company, of Climax, Lake County, was checking cars while they were dumping. Door arms broke on one car and car tipped over on him breaking his neck. Unavoidable accident .

September 10, H. W. Busselle, of Victor, age 71, single, dump lessee, employed by Empire Lee Mining Company, of Cripple Creek, Teller County, was cutting through dump when high side gave away and he was suffocated. Violation of safety rules and carelessness of injured.

September 22, Joseph M. Low, of Breckenridge, age 64, married, carpenter, employed by Garvie London Gold Mining Company, of Breckenridge, Summit County, was walking up cat walk when plank broke causing him to fall 12 feet, resulting in injuries which caused his death November 16th.

October 13, George Bruce Manning, of Creede, age 55, married, hoistman, employed by Emperius Mining Company, of Creede, Mineral County, was operating hoist and somehow got caught between cable and drum, crushing him to death instantly. Probably lack of safety device.

December 29, Louis Franchini, of Telluride, age 36, married, crusherman, employed by the Telluride Mines, Inc., of Telluride, San Miguel County, had finished crushing out and stopped crusher but left conveyor belt running, which is independent of crusher. While attempting to remove rock from belt his sleeve caught between belt and pulley drawing in his left shoulder and head and crushing his skull which caused instant death. Unavoidable accident.

**Mill:**

February 28, Wyatt A. Daniel, of Uravan, age 27, married, mill operator, employed by the United States Vanadium Corporation, of Uravan, Montrose County, caught his clothing on smooth line shaft running at chest height at one side of an elevated platform along which he was walking. Injuries resulted in death.

**Quarry:**

September 15, J. W. Nixon, of Colorado Springs, age 26, married, truck driver, employed by Thomas & Brown Lime Company, of Pueblo, Pueblo County, was riding up a steep incline in an empty tram car which gained such speed that the operator was unable to control it. At the top Nixon was thrown out, his head hitting rock face, resulting in death. Violation of safety rules and negligence of fellow workmen.

October 27, Caradoc Davies, of Florence, District Representative of United Mine Workers, age 57, married, went into the quarry of the Colorado Portland Cement Company, Portland, Colorado, to watch the operation of a large steam shovel. An electric motor pushing a train of empty cars approached from the rear. Mr. Davies was struck by the protruding frame of the car and knocked across the truck and two wheels of the car passed over his legs. He died two days later from the effects of the injury. Unavoidable accident so far as the company was concerned.

# FATAL ACCIDENTS, 1943

**Underground:**

January 18, Samuel Metras, of Idaho Springs, age 58, single, miner, employed by the California-Hidden Treasure Mines Company, Idaho Springs, Clear Creek County, came to his death by drowning from the blasting of a round of holes that tapped an unknown body of water in a stope above the level of the Argo tunnel. Body was recovered and brought to the surface January 20. Carelessness of injured in violating safety rule.

January 18, Charles Bennett, of Idaho Springs, age 56, married, miner, employed by the California-Hidden Treasure Mines Company, Idaho Springs, Clear Creek County, came to his death by drowning from the blasting of a round of holes that tapped an unknown body of water in a stope above the level of the Argo tunnel. Body was recovered and brought to surface January 20. Carelessness of injured in violating safety rule.

January 18, Lewis Hamilton, of Idaho Springs, age 22, married, miner, employed by the California-Hidden Treasure Mines Company, Idaho Springs, Clear Creek County, came to his death by drowning from the blasting of a round of holes that tapped an unknown body of water in a stope above the level of the Argo tunnel. Body was recovered and brought to surface January 22. Carelessness of injured in violating safety rule.

January 18, Claude Albert, of Idaho Springs, age 28, married, foreman, employed by the California-Hidden Treasure Mines Company, Idaho Springs, Clear Creek County, came to his death by drowning from the blasting of a round of holes that tapped an unknown body of water in a stope above the level of the Argo tunnel. Body was recovered and brought to surface January 19. Carelessness of injured in violating safety rule.

February 19, Floyd Van Scoy, of Denver, age 27, married, miner, employed by the Climax Molybdenum Company, Climax, Lake County, was killed while drilling a round of holes. He drilled into a missed hole on the ninth hole. Carelessness of injured.

March 16, James Gecsei, of Climax, age 24, married, whistlepunk, employed by the Climax Molybdenum Company, Climax, Lake County, was killed by an explosion which was caused by wheels of train passing over powder which had apparently rolled off of whistlepunk's bench onto rails. Unavoidable accident.

July 20, Leo B. Williams, of Cripple Creek, age 44, married, timberman, employed by Golden Cycle Corporation, Cripple Creek, Teller County, was driving an electric battery motor and was crushed between motor and chute and killed instantly. Unavoidable accident.

September 23, Frank Gerlica, Jr., of Climax, age 34, single, slusher helper, employed by the Climax Molybdenum Company, Climax, Lake County, was standing at side of switch while train was passing. Car was off track and when it hit frog it was deflected toward him and struck him. Died instantly. Unavoidable accident.

**Surface:**

June 9, Valeria McNeme, of Kremmling, age 32, married, ore sorter, employed by Walter McDaniel of the Big Four mine, Kremmling, Summit County, was carrying a bucket of water from living quarters to air compressor room for radiator and tripped going down stairway and fell down rock cliff about 60 feet. Died instantly. Cause unknown.

August 3, Jose Baca, of Pueblo, age 41, married, laborer, employed by the Interstate Engineering and Machinery Company, Pueblo, Pueblo County, was working near the shovel on one of the slag dumps, when the end of the dipperstick broke off and fell on Baca's head, killing him instantly. Unavoidable accident.

August 26, Edward P. Arthur, of Denver, age 73, married, Commissioner of Mines, employed by the State of Colorado, died August 29 from injuries sustained in an automobile accident while driving his car from the San Antonio mine to Ouray. Unavoidable accident.

December 19, Walter V. Schrafel, of Telluride, age 28, married, mine foreman, employed by the United States Vanadium Corporation as agent for Metals Reserve Company, Grand Junction, Mesa County, was killed instantly by explosion of water tank under pressure. Accidental.

**Mill:**

February 26, Clarence Gibson, of Telluride, age 35, married, crusherman, employed by the Telluride Mines, Inc., Telluride, San Miguel County, while on a grizzly, slipped through the rails to the top of a sloping ore bin, slid through feeder chains and into crusher while crushing machine was in motion. Was killed instantly. Violation of safety rules.

March 19, Hans A. Hansen, of Idaho Springs, age 68, married, millman, employed by the Alma Lincoln Mining Company, Idaho Springs, Clear Creek County, was found dead in mill ore bin. Mr. Hansen evidently stepped on a loose plank on top of ore bin, which tipped and caused him to fall about 20 feet into bottom of ore bin. Cause unknown.

May 28, Jack R. Tate of Durango, age 26, married, laborer, employed by the United States Vanadium Corporation as agent for Metals Reserve Company, Durango, La Plata County, climbed on top of a loaded box car to use the hand brake in lowering the car to the unloading bin. He used an iron pipe for a brake stick which slipped in some manner, causing injured to fall to tracks below. Died in hospital same evening. Unavoidable accident.

**Quarry:**

April 22, Eldon C. Church, of Canon City, age 31, married, machineman, employed by Colorado Fuel and Iron Corporation, Canon City, Fremont County, was running a jackhammer when a quantity of rock became loosened on the face of the quarry high above. Died in hospital April 23. Unavoidable accident.

## TABLE II

### DAYS OF EMPLOYMENT IN AND ABOUT MINES, MILLS AND SMELTERS AND NUMBER OF MEN KILLED AND INJURED PER 10,000 DAYS OF EMPLOYMENT DURING THE YEARS 1942 AND 1943

| | Days of Employment | | Fatal | | | | Partial Disability | | | | (Time Lost Over 14 Days) | | | | (Time Lost Under 14 Days) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1942 | | 1943 | | 1942 | | 1943 | | 1942 | | 1943 | | 1942 | | 1943 | |
| | 1942 | 1943 | No. of Accidents | Rate Per 10,000 Days | No. of Accidents | Rate Per 10,000 Days | No. of Accidents | Rate Per 10,000 Days | No. of Accidents | Rate Per 10,000 Days | No. of Accidents | Rate Per 10,000 Days | No. of Accidents | Rate Per 10,000 Days | No. of Accidents | Rate Per 10,000 Days | No. of Accidents | Rate Per 10,000 Days |
| Underground.. | 1,146,004 | 940,612 | 29 | .2530 | 8 | .0850 | 9 | .0785 | 11 | .1169 | 243 | 2.120 | 163 | 1.732 | 378 | 3.298 | 326 | 3.455 |
| Surface ....... | 377,241 | 264,022 | 7 | .1855 | 4 | .1515 | 4 | .1060 | .. | .... | 83 | 2.200 | 36 | 1.363 | 129 | 3.419 | 98 | 3.711 |
| Mills ......... | 797,095 | 551,808 | 1 | .0125 | 3 | .0543 | 3 | .0376 | 1 | .0181 | 22 | .2760 | 16 | .2899 | 50 | .6272 | 42 | .7611 |
| Smelters ...... | 93,453 | 98,840 | .. | .... | .. | .... | .. | .... | .. | .... | 1 | .1070 | 2 | .2023 | .. | .... | 2 | 2.023 |
| Quarries ...... | 119,585 | 96,981 | 2 | .1672 | 1 | .1031 | .. | .... | 1 | .1031 | 9 | .7526 | 10 | 1.031 | 28 | 2.341 | 28 | 2.887 |
| Placers ....... | 30,347 | ...... | .. | .... | .. | .... | 1 | .3295 | .. | .... | 6 | 1.977 | .. | .... | 9 | 2.965 | .. | .... |

## TABLE III

## CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1942 AND 1943

| | | Fatal | | Serious Injuries Time lost over 14 days | | | | | | Slight Injuries (Time lost under 14 days) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Permanent Total Disability | | Permanent Partial Disability | | Temporary Disability | | | |
| | UNDERGROUND | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 |
| 1. | Fall of rock or ore from roof or wall | 10 | .. | .. | .. | 2 | 3 | 55 | 27 | 73 | 41 |
| 2. | Rock or ore while loading at working face | .. | .. | .. | .. | 1 | 1 | 32 | 14 | 39 | 33 |
| 3. | Hand tools | .. | .. | .. | .. | 3 | 1 | 7 | 8 | 29 | 26 |
| 4. | Explosives | 5 | 2 | .. | .. | 2 | .. | 8 | 1 | 2 | .. |
| 5. | Haulage | 1 | 2 | .. | .. | 1 | 3 | 44 | 42 | 46 | 46 |
| 6. | Falling down chute, winze, raise or stope | 2 | .. | .. | .. | .. | .. | 17 | 13 | 17 | 18 |
| 7. | Run of ore from chute or pocket | .. | .. | .. | .. | .. | .. | 2 | .. | 3 | .. |
| 8. | Drilling | .. | .. | .. | .. | .. | 1 | 28 | 10 | 61 | 68 |
| 9. | Electricity | .. | .. | .. | .. | .. | 1 | .. | 1 | 2 | 1 |
| 10. | Machinery (other than locomotive or drills) | .. | .. | .. | .. | .. | 1 | 5 | 7 | 7 | 15 |
| 11. | Mine fires | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 12. | Suffocation from natural gases | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| 13. | Inrush of water | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. |
| 14. | Stepping on nail | .. | .. | .. | .. | .. | .. | 2 | 2 | 8 | 6 |
| 15. | Handling materials (other than rock or ore) | .. | .. | .. | .. | .. | .. | 23 | 22 | 61 | 46 |
| 16. | Other causes | .. | .. | .. | .. | .. | .. | 4 | 1 | 12 | 10 |
| | Total | 26 | 8 | .. | .. | 9 | 11 | 227 | 148 | 361 | 311 |
| | SHAFT | | | | | | | | | | |
| 17. | Falling down shaft | 1 | .. | .. | .. | .. | .. | 3 | 3 | 2 | .. |
| 18. | Objects falling down shaft | 1 | .. | .. | .. | .. | .. | 2 | 1 | 3 | 5 |
| 19. | Breaking of cables | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| 20. | Overwinding | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 21. | Cage, skip, or bucket | 1 | .. | .. | .. | .. | .. | 7 | 7 | 9 | 9 |
| 22. | Other causes | .. | .. | .. | .. | .. | .. | 4 | 3 | 3 | 1 |
| | Total | 3 | .. | .. | .. | .. | .. | 16 | 15 | 17 | 15 |

## CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1942 AND 1943—Continued

| | | Fatal | | Serious Injuries Time lost over 14 days Permanent Total Disability | | Serious Injuries Time lost over 14 days Permanent Partial Disability | | Serious Injuries Time lost over 14 days Temporary Disability | | Slight Injuries (Time lost under 14 days) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SURFACE | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 |
| 23. | Mine cars, mine locomotives, or aerial trams | 2 | .. | .. | .. | .. | .. | 7 | 2 | 9 | 5 |
| 24. | Railway cars and locomotives | .. | .. | .. | .. | .. | .. | 3 | 1 | 3 | 4 |
| 25. | Run or fall of ore from ore bin | .. | .. | .. | .. | .. | .. | 4 | 1 | 4 | 3 |
| 26. | Falls of persons | 1 | 1 | .. | .. | .. | .. | 29 | 15 | 29 | 20 |
| 27. | Stepping cn nail | .. | .. | .. | .. | .. | .. | 1 | 1 | 5 | 4 |
| 28. | Hand tools | .. | .. | .. | .. | .. | .. | 9 | .. | 10 | 19 |
| 29. | Electricity | .. | .. | .. | .. | .. | .. | 2 | .. | 4 | 2 |
| 30. | Machinery | 2 | 2 | .. | .. | 2 | .. | 4 | 6 | 13 | 4 |
| 31. | Handling materials | .. | .. | .. | .. | 2 | .. | 18 | 7 | 44 | 29 |
| 32. | Other causes | 2 | 1 | .. | .. | .. | .. | 6 | 3 | 8 | 8 |
| | Total | 7 | 4 | .. | .. | 4 | .. | 83 | 36 | 129 | 98 |
| | ORE DRESSING AND MILLING | | | | | | | | | | |
| 1. | Haulage (cars and motors) | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| 2. | Railway cars or locomotives | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| 3. | Crushers, rolls, or stamps | .. | 1 | .. | .. | 1 | .. | 2 | .. | 4 | 1 |
| 4. | Tables, jigs, etc. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 5. | Other machinery | 1 | .. | .. | .. | 1 | .. | 5 | 3 | 8 | 5 |
| 6. | Falls of persons | .. | 2 | .. | .. | .. | .. | 2 | 1 | 1 | 4 |
| 7. | Suffocation in ore bin | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 8. | Falling objects (rocks, timbers, etc.) | .. | .. | .. | .. | .. | .. | .. | 2 | 3 | 1 |
| 9. | Cyanide or other poisoning | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 10. | Scalding (steam or water) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 11. | Electricity | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| 12. | Hand tools | .. | .. | .. | .. | .. | .. | 1 | 1 | 2 | 6 |
| 13. | Stepping on nail | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 |
| 14. | Flying pieces of rock from sledging or crushing | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 1 |
| 15a. | Handling of materials | .. | .. | .. | .. | .. | .. | 3 | 2 | 3 | 2 |
| 15b. | Other causes | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| | Total | 1 | 3 | .. | .. | 2 | .. | 13 | 9 | 28 | 23 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SMELTER | | | | | | | | | | |
| 16. Haulage (cars, motors, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| 17. Railway cars or locomotives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 18. Cranes | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 19. Other machinery | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 20. Falls of persons | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 21. Suffocation in ore bin | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 22. Flying or falling objects (rocks, timbers, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 23. Gas (burns or asphyxiation) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 24. Scalding (steam or water) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 25. Electricity | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 26. Hand tools | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| 27. Stepping on nail | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 28. Burns from matte, slag or molten metal (pouring or spilling) | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| 29. Hot metal explosion | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 30a. Handling materials | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 1 |
| 30b. Other causes | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Total | .. | .. | .. | .. | .. | .. | 1 | 2 | .. | 2 |
| AUXILIARY WORKS | | | | | | | | | | |
| 31. Haulage (cars and motors) | .. | .. | .. | .. | 1 | .. | .. | 1 | 1 | .. |
| 32. Railway cars or locomotives | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| 33. Falls of persons | .. | .. | .. | .. | .. | .. | 4 | 2 | 4 | 4 |
| 34. Falling objects (rocks, timbers, etc.) | .. | .. | .. | .. | .. | .. | 1 | .. | 6 | 1 |
| 35. Stepping on nail | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| 36. Hand tools | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 |
| 37. Electricity | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 2 |
| 38. Machinery | .. | .. | .. | .. | .. | 1 | 1 | 2 | 3 | .. |
| 39. Failure of ladder, scaffold or other support | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 40. Handling hot materials | .. | .. | .. | .. | .. | .. | .. | 1 | 3 | 5 |
| 41a. Handling other materials | .. | .. | .. | .. | .. | .. | 2 | .. | 4 | 4 |
| 41b. Other causes | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| Total | .. | .. | .. | .. | 1 | 1 | 9 | 7 | 22 | 19 |

## CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1942 AND 1943—Continued

| | | | | Serious Injuries Time lost over 14 days | | | | | | Slight Injuries (Time lost under 14 days) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Fatal | | Permanent Total Disability | | Permanent Partial Disability | | Temporary Disability | | | |
| | UNDERGROUND QUARRY | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 | 1942 | 1943 |
| 1. | Fall of rock from roof or wall | .. | 1 | .. | .. | .. | .. | 2 | 3 | .. | 4 |
| 2. | Rock while loading at working face | .. | .. | .. | .. | .. | .. | 1 | 1 | 6 | 7 |
| 3. | Hand tools | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| 4. | Explosives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 5. | Haulage | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. |
| 6. | Falling down chute, winze, raise, or stope | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 7. | Run of rock from chute or pocket | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 8. | Drilling | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| 9. | Electricity | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 10. | Machinery (other than locomotives or drills) | .. | .. | .. | .. | .. | .. | .. | 2 | 1 | 1 |
| 11. | Mine fires | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 12. | Suffocation from natural gases | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 13. | Inrush of water | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 14. | Stepping on nails, etc. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 15. | Handling materials (other than rock) | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. |
| 16. | Other causes | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| | Total | .. | 1 | .. | .. | .. | .. | 5 | 6 | 13 | 13 |
| | OUTSIDE WORKS (QUARRY) | | | | | | | | | | |
| 17. | Haulage | 2 | .. | .. | .. | .. | .. | 1 | 1 | 5 | 3 |
| 18. | Machinery | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | 1 |
| 19. | Cranes, derricks, etc. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 20. | Hand tools | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| 21. | Stepping on nails | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 22. | Electricity | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 23. | Falls of persons | .. | .. | .. | .. | .. | .. | .. | 1 | 4 | 2 |
| 24. | Falling objects (rocks, etc.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 |
| 25. | Flying objects (rocks, etc.) | .. | .. | .. | .. | .. | 1 | .. | .. | 2 | 1 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 26. Handling materials (rocks, etc.) | .. | .. | .. | .. | .. | .. | 2 | .. | 1 | 3 |
| 27. Burns | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 2 |
| 28. Explosives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 29. Other causes | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| Total | 2 | .. | .. | .. | .. | 1 | 4 | 4 | 15 | 15 |
| **PLACERS AND DREDGES** | | | | | | | | | | |
| 1. Machinery | .. | .. | .. | .. | .. | .. | 4 | 1 | 2 | .. |
| 2. Electricity | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 3. Boiler explosion | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 4. Haulage | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 5. Falls of persons | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| 6. Hand tools | .. | .. | .. | .. | .. | .. | .. | .. | 3 | .. |
| 7. Fall of rock | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 8. Other causes | .. | .. | .. | .. | 1 | .. | .. | .. | 2 | .. |
| Total | .. | .. | .. | .. | 1 | .. | 6 | 1 | 9 | .. |

## LIST OF OPERATING MINES IN VARIOUS COUNTIES IN COLORADO

### OPERATING MINES IN BOULDER COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| April Fool | Sugarloaf | Jump Mining and Milling Company | 1015 Walnut Street, Boulder | Tungsten |
| Argo, Brown Spar and Emmett | Boulder | H. M. Williamson and Son | 728 U. S. National Bank Bldg., Denver | Fluorspar |
| Black Prince | Boulder | M. P. Tungsten Lease | 616 University Bldg., Denver | Tungsten |
| Blue Bird | Nederland | Great Western Silver Mines Corp. | Nederland | Gold, Silver, Copper, Lead |
| Blue Jay | Sugarloaf | W. D. Brown | Box 948, Greeley | Tungsten |
| Brown | Jamestown | H. M. Williamson and Son | 728 U. S. National Bank Bldg., Denver | Fluorspar |
| Burlington | Jamestown | General Chemical Company | 40 Rector Street, New York City | Fluorspar |
| Chingis Kahn, etc. | Boulder | M. Benham | 802 18th Street, Boulder | Gold, Silver |
| Cold Springs No. 4 | Nederland | Wolf Tongue Mining Company | First National Bank Bldg., Boulder | Tungsten |
| Cold Springs Tungsten Placer | Nederland | Manion Placer Mines | 1740 Grape Street, Denver | Tungsten |
| Conger | Nederland | Vanadium Corporation of America | National State Bank Bldg., Boulder | Tungsten |
| Copper King | Boulder and Gold Hill | Cobalt Gold Mining Company | Gold Hill | Gold, Silver, Copper, Cobalt, Nickel |
| Crete | Sugarloaf | Clyde Lowery, E. B. Ralston and H. M. Tenhoff | 1435 Spruce Street, Boulder | Tungsten |
| Cross No. 4 | Nederland | Wolf Tongue Mining Company | First National Bank Bldg., Boulder | Tungsten |
| Dorothy | Sugarloaf | George H. Teal and Associates | 3134 6th Street, Boulder | Tungsten |
| East Boston | Boulder | Ward United Mines Company | 302 Denham Bldg., Denver | Gold, Silver, Copper, Lead |
| Elsie | Nederland | W. L. and Guy J. Tanner | Nederland | Tungsten |
| Eureka | Boulder | Ben Newman and Associates | Nederland Star Route, Boulder | Tungsten |
| Forest Home | Nederland | Elmer Hetzer | 2045 Mapleton Street, Boulder | Tungsten |
| Hoosier | Nederland | C. G. Todd and Associates | 1818 Pine Street, Boulder | Tungsten |
| Hoosier Extension | Nederland | George Prime and Edward Hollifield | Nederland | Tungsten |
| Illinois | Nederland | Wolf Tongue Mining Company | First Nat'l Bk. Bldg., Boulder | Tungsten |
| Kekeonga | Boulder | Dr. R. O. Smith, W. W. Greenewald and E. F. Green | 424 Republic Bldg., Denver | Gold, Silver, Tungsten |
| Little Johnny | Boulder | Aaron Stromberg and W. R. Griswald | 242 15th Street, Boulder | Gold, Silver, Lead, Zinc |
| Mackenzie | Nederland | Kenneth MacKenzie and Wall | 1025 Mapleton Ave., Boulder | Tungsten |
| Nancy Group | Boulder | Hard Rock Mining Company | 3205 5th Street, Boulder | Gold, Silver |
| Nations Treasure | Jamestown | Frank Davis and Associates | Lafayette | Fluorspar |

| | | | | |
|---|---|---|---|---|
| Oregon | Sugarloaf | Jump Mining & Milling Company | 1015 Walnut Street, Boulder | Tungsten |
| Pandora | Nederland | Pandora Metals, Inc. | 220 E. & C. Bldg., Denver | Gold, Silver, Lead |
| Pennsylvania | Sugarloaf | Earl Craig and Associates | 1027 Pine Street, Boulder | Tungsten |
| Pueblo Belle | Boulder | S. W. Shattuck Chemical Company | 1805 So. Bannock St., Denver | Tungsten |
| Quay | Nederland | M. MacKenzie and Associates | Nederland | Tungsten |
| Rambler | Nederland | Thomas Walsh and Associates | Nederland | Tungsten |
| Red Sign | Boulder | Frank L. Cleveland | 3158 10th Street, Boulder | Tungsten |
| Rogers Tract No. 2 | Nederland | J. A. Smith | Nederland | Tungsten |
| Rogers Tract No. 4 | Nederland | Slide Mines, Inc. | 401 Security Bldg., Denver | Tungsten |
| Roosevelt | Boulder | Alex McLellan and H. S. Thayer | 930 14th Street, Boulder | Tungsten |
| Sunday | Nederland | Beaver Creek Tungsten Mines | Rm. 11, Temple Bldg., Boulder | Tungsten |
| Sunshine | Boulder | George D. Parks and Associates | Salina Star Route, Boulder | Tungsten |
| Tammany | Boulder | John Deerkson and Associates | 826 Continental Oil Bldg., Denver | Gold, Silver, Lead, Zinc |
| Vasco Nos. 5, 6 & 7 | Nederland | Boulder Tungsten Mills, Inc., and<br>H. M. Gregory | Box 1, Boulder<br>663 Concord Avenue, Boulder | Tungsten |
| Victor | Nederland | Oscar Fafey and Associates | Nederland | Tungsten |
| Walker Ranch | Pinecliff | M. P. Tungsten Lease | 616 University Bldg., Denver | Tungsten |
| Wynona | Gold Hill | Brewster Mines Inc. | Box 483, Boulder | Gold, Silver, Lead |

## OPERATING MINES IN CHAFFEE COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Aksarben | Salida | American Fluorspar Corporation | Salida | Fluorspar |
| Allard Beryllium | Turret | George Allard | 317 22nd Street, Denver | Beryl |
| Bancroft Incline | Browns Canon | Chaffee County Fluorspar Corp. | 223 East First Street, Salida | Fluorspar |
| Chaffee County Fluorspar | Manganese Hill | Chaffee County Fluorspar Corp. | 223 East First Street, Salida | Fluorspar |
| Colorado Fluorspar | Browns Canon | Colorado Fluorspar Corporation | Salida | Fluorspar |
| Condor | Shavano Mou'tn | Harold Koster and Melvin Brugger | Bonanza | Lead, Zinc |
| Divide Group | Spar Mountain | Kramer Mines Incorporated | 201 Continental Oil Building, Denver | Fluorspar |
| Garfield | Taylor Gulch | S. E. Burleson and Associates | Salida | Lead, Zinc |
| Hawkeye | Monarch | Joseph C. MacKeen, Trustee | Garfield | Lead |
| Kramer Mines | Browns Canon | Kramer Mines Incorporated | 201 Continental Oil Building, Denver | Fluorspar |
| Lilly | Taylor Gulch | Harry Hiner | 641 Josephine Street, Denver | |
| Mary Murphy | St. Elmo | W. K. McIver | Box 112, Buena Vista | Gold, Silver, Lead |
| | Browns Canon | Colorado Fluorspar Corporation | Salida | Fluorspar |
| Trefone Tunnel | Browns Canon | American Fluorspar Corporation | 126½ East Pikes Peak Avenue, Colorado Springs | Fluorspar |
| Mill Tunnel | Browns Canon | Colorado Fluorspar Corporation | Salida | Fluorspar |
| Universal Mines | Browns Canon | Kramer Mines Incorporated | 201 Continental Oil Building, Denver | Fluorspar |
| Wolfrom Tunnel | Maysville | L. S. Hart | Garfield Route via Salida | Lead |

## OPERATING MINES IN CLEAR CREEK COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Anglo Saxon | Georgetown | Roy Kimbel and Associates | Sheldon, Washington | Silver, Lead, Zinc |
| Argo Tunnel | Idaho Springs | The Argo Mining, Drainage, Transportation and Tunnel Company | 307 Boston Building, Denver | |
| Bald Eagle | Idaho Springs | C. E. Fetterhoff | Box 63, Idaho Springs | Gold, Silver, Lead, Zinc |
| Bride | Idaho Springs | Herbert A. Strasser | Box 674, Central City | Gold, Silver, Lead, Zinc |
| Brighton | Idaho Springs | Mineral Reclamation Service Inc. | 320 Security Building, Denver | Gold, Silver, Lead, Zinc |
| Diamond Tunnel | Silver Plume | Colorado Cornwall Mines Ltd. | 406 17th Street, Denver | Gold, Silver, Lead, Zinc |
| Dunbarton | Georgetown | Roy Kimbel and Associates | Sheldon, Washington | Silver, Lead, Zinc |
| Edgar | Idaho Springs | E. G. Heckendorf and Assoc. | Littleton | Gold, Silver, Lead, Zinc |
| Elliott Barber and Lincoln | Idaho Springs | Alma Lincoln Mining Company | Idaho Springs | Gold, Silver, Lead, Copper |
| Freighters Friend | Idaho Springs | Freighters Friend Mining Company | Box 716, Idaho Springs | Gold, Silver, Lead, Zinc |
| Gold Belt | Silver Plume | Captain Frank L. Jones, C. M. P. | Camp Phillips, Kansas | Silver, Lead, Zinc |
| Great Grizzly Gulch | Silver Plume | O. Barlow Willmarth | Georgetown | Gold, Silver, Lead, Zinc |
| Hamill Tunnel | Idaho Springs | Buckley Bros. | Silver Plume | Silver, Lead, Zinc |
| Highland | Idaho Springs | Elbert Lowdermilk | 325 South Vine Street, Denver | Gold, Silver, Lead, Zinc |
| Humboldt | Idaho Springs | Arthur Portenier and Associates | Idaho Springs | Gold, Silver, Lead, Zinc |
| Jo Reynolds | Lawson | E. H. Geary and Associates | 1350 Grant Street, Denver | Gold, Silver, Lead |
| Kitty Clyde | Idaho Springs | Wm. Kirshmer and Associates | Central City | Gold, Silver, Lead, Copper, Zinc |
| Lamartine | Idaho Springs | Lamartine Mines, Inc. | Idaho Springs | Gold, Silver, Lead, Zinc |
| Mendota | Silver Plume | Wallace K. Howard | 702 N. Cascade, Colorado Spgs. | Gold, Silver, Lead, Zinc |
| Minnesota | Empire | Minnesota Mines, Inc. | Empire | Gold, Silver, Lead, Zinc |
| Red Elephant | Lawson | Red Elephant Metals, Inc. | Idaho Springs | Gold, Silver, Lead, Zinc |
| Ruth | Idaho Springs | J. P. Ruth | Continental Oil Bldg., Denver | |
| Sidney | Georgetown | E. P. Moe | Georgetown | Silver, Lead, Zinc |

| | | | | |
|---|---|---|---|---|
| Smuggler | Silver Plume | Mile High Mining Company | West 38th & Howell Avenue, Wheatridge | Gold, Silver, Lead, Zinc |
| Stanley | Idaho Springs | J. B. Furstenberg | 1120 20th Street, Denver | Gold, Silver, Copper, Lead, Zinc |
| Stevens | Silver Plume | H. V. George, Lessee | Cosmopolitan Hotel, Denver | Gold, Silver, Lead, Zinc |
| Tolland County | Idaho Springs | Utze Lode Company | 108 Van Buren Avenue, West Hartford, Conn. | Gold, Silver, Lead, Zinc |
| Urad | Empire | Molybdenum Corporation of America | Empire | Molybdenum |

## OPERATING MINES IN CUSTER COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Crescent | Florence | Aikin and Decker | Wetmore | Gold |
| Deceiver Shaft | Westcliffe | A. F. Nicholson | Box 44, Silver Cliff | Silver, Lead, Zinc |
| Defender | Westcliffe | H. R. Henning and Associates | Silver Cliff | Silver, Lead |
| Keystone | Westcliffe | Dick Colgate and William Hoge | Westcliffe | Silver, Lead, Zinc |
| Lady Franklin | Silver Cliff | Adolph M. Poston | Canon City | Copper, Lead, Zinc |
| Maxine Elliott | Westcliffe | Grice and Kyner | Cripple Creek | Silver, Lead, Zinc |
| New Hermon | Westcliffe | W. C. Cavender | Westcliffe | Silver, Lead, Zinc |
| P. D. Q. | Silver Cliff | W. C. Cavender | Silver Cliff | Copper, Lead, Zinc |
| Superior | Florence | Thos. Blunt, W. I. Looney, Jack Eishour and Frank Holman | Florence | Gold |

## OPERATING MINES IN DOLORES COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Atlantic Cable | Rico | Rico Argentine Mining Company | 132 So. Main St., Salt Lake City, Utah | Gold, Silver, Lead, Zinc |
| Barlow | Rico | Louis and J. G. Dunning | Rico | Vanadium |
| Black Hawk | Rico | Rico Argentine Mining Company | 132 So. Main St., Salt Lake City, Utah | Gold, Silver, Lead, Zinc |
| Nora Lily | Rico | Mrs. Elizabeth Pellett | Rico | Gold, Silver, Copper, Lead, Zinc |
| Pro Patria | Rico | Rico Argentine Mining Company | 132 So. Main St., Salt Lake City, Utah | Gold, Silver, Lead, Zinc |
| Rico-Argentine | Rico | Rico Argentine Mining Company | 132 So. Main St., Salt Lake City, Utah | Gold, Silver, Lead, Zinc |

## OPERATING MINES IN DOLORES COUNTY, 1943—Contnued

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Stock Pile of Metals Reserve Company | Dove Creek | Metals Reserve Company | Electric Building, Grand Junction | Vanadium |
| Van Winkle | Rico | Rico Argentine Mining Company | 132 So. Main St., Salt Lake City, Utah | Gold, Silver, Lead, Zinc |

## OPERATING MINE IN EAGLE COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Eagle | Battle Mountain | New Jersey Zinc Company, Empire Zinc Division | Gilman | Copper, Lead, Zinc |

## OPERATING MINES IN FREMONT COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Horseshoe | Cotopaxi | Monarch Galena Company | Box 115, Cotopaxi | Copper, Lead, Zinc |
| Gumaer | Canon City | L. D. Christison and Associates | Canon City | Lead, Zinc |

## OPERATING MINES IN GARFIELD COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Garfield | Rifle | Metals Reserve Company | Grand Junction | Vanadium |
| Garfield Vanadium | East Rifle Creek | U. S. Vanadium Corporation | 30 East 42d St., New York City | Vanadium |
| Rifle Creek | Rifle | U. S. Vanadium Corporation | 30 East 42d St., New York City | Vanadium |

## OPERATING MINES IN GILPIN COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Anchor | Central City | V. C. Lasswell | Box 232, Central City | Gold, Silver, Lead, Zinc |
| Boodle | Central City | Lowell Griffith, Trustee | Central City | Silver, Lead, Zinc |
| Bullion | Central City | Victory Metals Ltd. | 602 Denham Bldg., Denver | Gold, Silver, Lead, Zinc |
| Gold Cup | Central City | Mid Continent Metals Corporation | Idaho Springs | Gold, Silver, Lead, Zinc |
| Golden Dollar | Russell Gulch | R. I. Hughes | Arvada | Gold, Silver, Lead, Zinc |

| | | | | |
|---|---|---|---|---|
| Meeker | Central City | D. C. Fye and Associates | Idaho Springs | Gold, Silver, Lead, Zinc |
| Monmouth-Kansas | Idaho Springs | The California-Hidden Treasure Mines Company | 307 Boston Building, Denver | Gold, Silver, Lead, Copper, Zinc, Iron |
| Old Town | Russell Gulch | Himrod-Kimball Mines Company | Box 53, Idaho Springs | Gold, Silver |
| Philadelphia and Hubert | Central City | E. L. Hayes and Associates | Box 211, Central City | Silver, Lead, Zinc |
| Pittsburgh Group | Central City | Kingmills, Incorporated | 39 Broadway, New York City | Gold, Silver, Copper, Lead |
| Powers | Central City | Lu Ev Mining Company | Central City | Gold, Silver, Copper, Lead |
| Pozo | Idaho Springs | George E. Collins | 307 Boston Building, Denver | |
| West Notaway | Central City | Neeper and Company | Idaho Springs | Gold, Silver, Lead, Copper |
| Widow Women | Russell Gulch | G. S. & G. Mining Company | Box 42, Idaho Springs | Gold, Silver, Lead, Zinc |

## OPERATING MINES IN GUNNISON COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Akron | White Pine | Callahan Zinc-Lead Company | 9 Rockefeller Plaza, New York City | Silver, Lead, Zinc |
| Alexite | Powderhorn | The Alexite Engineering Company | 3200 North Nevada, Colorado Springs | Vermiculite, Manganese |
| Erie | White Pine | Callahan Zinc-Lead Company | 9 Rockefeller Plaza, New York City | Silver, Copper, Lead, Zinc |
| Star | Gunnison | John Lambertson | Box 567, Gunnison | Silver, Lead, Zinc |

## OPERATING MINES IN HINSDALE COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Ute and Ulay | Lake City | Base Metals Corporation | 626 University Bldg., Denver | Gold, Silver, Copper, Lead, Zinc |

## OPERATING MINES IN JACKSON COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Colorado Fluorspar | Cowdrey | Western Fluorspar Corporation | 211 West 19th St., Cheyenne, Wyoming | Fluorspar |
| Kramer Fluorspar | Cowdrey | Kramer Mines, Incorporated | 201 Continental Oil Bldg., Denver | Fluorspar |

## OPERATING MINES IN LAKE COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Adelaide | Leadville | John Begonovich | 700 East 9th Street, Leadville | Silver, Lead |
| Climax | Climax | Climax Molybdenum Company | Continental Oil Bldg., Denver | Molybdenum |
| Dolly B | Leadville | McCaughan and Company | West 6th Street, Leadville | Lead, Zinc |
| Ella Tunnel | Evans Gulch | T. J. Ahern and Associates | Leadville | Lead, Zinc |
| Forbes Tunnel | South Evans Gulch | Mike Bonan | 215 West 6th Street, Leadville | Gold, Silver, Lead |
| Fortune | Leadville | Paul R. Clark | 1012 Harrison Ave., Leadville | Gold, Silver, Lead, Zinc |
| Ibex No. 2 | Johnny Hill | Ibex Mining Company | Leadville | Gold, Silver, Copper, Lead, Zinc |
| Keystone | Leadville | Commerce Lease, Joyce Brothers | 301 East 5th Street, Leadville | Gold, Silver, Lead |
| New Monarch | Evans Gulch | Tony Sodic and Associates | 222 West 4th Street, Leadville | Silver, Lead |
| Resurrection | Yak Tunnel | Resurrection Mining Company | Leadville | Gold, Silver, Copper, Lead, Zinc |
| Sunday | California Gulch | Oscar Reynolds | 1032 E. 14th Ave., Denver | Gold, Silver, Copper, Lead, Zinc |
| Tucson | Leadville | Lind Lease | 419 East 2d St., Leadville | Silver, Lead |
| Valley | Big Evans Gulch | California Gulch Mining and Milling Company | Leadville | Gold, Silver, Lead |
| Valley | Evans Gulch | Harry Sundstrom | Box 266, Leadville | Lead, Zinc |

## OPERATING MINES IN MESA COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Calamity No. 7 | Gateway | Carroll and Lewis | Palisade | Vanadium |
| Calamity No. 8 | Gateway | L. D. Clark and Associates | Gateway | Vanadium |
| Calamity No. 10 | Gateway | Howard Arbogast | Gateway | Vanadium |
| Calamity No. 18 | Gateway | K. C. Hornbaker | Gateway | Vanadium |
| Calamity No. 20 | Gateway | Art Moore | Gateway | Vanadium |
| Hidden Treasure | Gateway | Jack Rutherford | Gateway | Vanadium |
| No. 9 and Cracker Jack | Gateway | L. D. Clark and Associates | Gateway | Vanadium |
| Outlaw | Gateway | Frank Long | Gateway | Vanadium |
| Stock Pile Metals Reserve Company | Gateway | Metals Reserve Company | Electric Bldg., Grand Junction | Vanadium |
| Sunflower | Gateway | Ray Brown | Gateway | Vanadium |
| Triangle | Gateway | Etzler and Monell | Gateway | Vanadium |

## OPERATING MINES IN MINERAL COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Creede Group | Creede | Emperius Mining Company | 695 Locust Street, Denver | Silver, Lead |
| Wagon Wheel Gap Fluorspar | Wagon Wheel Gap | The Colo. Fuel and Iron Corp. | Continental Oil Bldg., Denver | Fluorspar |

## OPERATING MINES IN MONTROSE COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Aztec | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Vanadium |
| Badger | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Bitter Creek | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Carnotite |
| Black Dinah | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Bob Cat | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| C. F. C. | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Cliffdweller | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Vanadium |
| Coloradium | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Cripple Creek No. 1 | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Fall Creek | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Vanadium |
| Great Western | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Henry Clay No. 1 | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Henry Clay No. 2 | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Jo Dandy | Bedrock | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Little Dick | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Long Park No. 6 | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Long Park No. 10 | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Media | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Carnotite |
| Monogram | Bedrock | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Ophir | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Raven | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Raven | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Carnotite |
| Republican | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Carnotite |
| Rock Raven | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Roosevelt | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Carnotite |
| Shamrock | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Sharkey | Uravan | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Vanadite | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Carnotite |
| Wild Steer Nos. 1 and 2 | Naturita | Vanadium Corporation of America | 420 Lexington Ave., New York City | Carnotite |

## OPERATING MINES IN OURAY COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Atlas | Ouray | Edward Creel and Assoc. | Ouray | Gold, Silver, Copper, Lead, Zinc |
| Barstow | Ouray | Metals Reserve Company | Box D, Ouray | |
| Genessee | Ouray | McCullough Lease | Ouray | Silver, Lead, Copper, Zinc |
| Genessee-Vanderbilt | Ouray | George E. Collins | 307 Boston Bldg., Denver | Gold, Silver, Copper, Lead, Zinc, Iron |
| Highland Chief | Ouray | Frank Fedel and Company | Ouray | Gold, Silver, Copper, Lead, Zinc |
| King Lease | Ouray | King Lease, Inc. | Ouray | Gold, Silver, Copper, Lead |
| Mickey Breen | Ouray | Edward Creel and Assoc. | Ouray | Silver, Lead, Copper, Zinc |
| Mountain King | Ouray | Wm. McCullough and Assoc. | Ouray | Gold, Silver, Copper, Lead, Zinc |
| Red Mountain | Ouray | George E. Collins | 307 Boston Bldg., Denver | |
| Revenue | Ouray | Revenue Mines Company | Ouray | Gold, Silver, Lead, Zinc |
| Sonza Lease on Bachelor | Ouray | J. R. Sonza and Assoc. | Ouray | Gold, Silver, Copper, Lead, Zinc |
| Sonza Lease on Syracuse Tunnel | Ouray | J. R. Sonza and Assoc. | Ouray | Gold, Silver, Copper, Lead, Zinc |
| Treasury Tunnel | Ouray | Sunshine Mining Company, agents for Metals Reserve Company | Box D, Ouray | Gold, Silver, Copper, Lead, Zinc |
| Wanakah | Ouray | Wm. McCullough and Assoc. | Ouray | Gold, Silver |
| Whippoorwill | Ouray | The Hayden Mining Company | Box 1071, Colorado Springs | Manganese |

## OPERATING MINES IN PARK COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Barcoe Tunnel | Fairplay | Barcoe Mining Company | 1002 Patterson Bldg., Denver | Gold, Silver |
| Buckskin Joe | Alma | Buckskin Joe Mines, Ltd. | Alma | Gold, Silver, Lead, Zinc |
| Butte | Alma | London Butte Gold Mining Company | 529 Equitable Bldg., Denver | Gold, Silver, Copper, Lead |
| Gold Top No. 3 | Alma | W. B. McCauly | Alma | Gold, Copper, Lead, Zinc |
| Great Western | Lake George | O. N. Sandholm | 4131 E. 26th Ave., Denver | Zinc |
| Lake George Fluorspar | Lake George | Kyner and Daniels | Cripple Creek | Fluorspar |
| London | Alma | The London Mines & Milling Co. | Alma | Gold, Silver, Lead, Zinc |

| | | | | |
|---|---|---|---|---|
| Magnolia | Alma | Magnolia Gold Mining Company | Alma | Gold, Silver, Lead, Zinc |
| Mineral Park | Alma | A. M. Brandt | 1203 1st Nat. Bk. Bldg., Denver | Silver, Lead |
| Orphan Boy | Alma | The London Extension Mining Co. | 727 U. S. National Bank Bldg., Denver | Gold, Silver, Lead, Zinc |
| Phillips | Alma | Buckskin Joe Mines, Ltd. | Alma | Gold, Silver, Lead, Zinc |
| Red Cross | Alma | Miller and Logue | Alma | Gold, Silver, Lead, Zinc |
| Silver Saddle | Alma | Alma Zinc Company | 609 California Bldg., Denver | Gold, Silver, Lead, Zinc |
| Tarryall Fluorspar | Lake George | Luke E. Smith | 1225 12th Street, Denver | Fluorspar |

## OPERATING MINES IN PITKIN COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Aspen Contact | Aspen | John W. Vanderwilt | Midland Sav. Bldg., Denver | Lead, Zinc |
| Midnight | Aspen | Midnight Mining Company | Aspen | Silver, Lead, Zinc |
| Tam O'Shanter | Aspen | Byron Rogers and Assoc. | Midland Sav. Bldg., Denver | Copper, Lead, Zinc |
| Tourtellotte Park | Aspen | Lewis Unteriser | 1531 Sherman Street, Denver | |

## OPERATING MINES IN RIO BLANCO COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Meeker | Meeker | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Vanadium |
| Riland Group | Meeker | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Vanadium |
| Urive | Meeker | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Vanadium |

## OPERATING MINE IN RIO GRANDE COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Gold Links, formerly Summitville | Summitville | Gold Links Mine | Summitville | Gold, Copper |

## OPERATING MINE IN ROUTT COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Greenville | Clark | M. G. Franz and Assoc. | Clark | Silver, Lead, Zinc |

## OPERATING MINES IN SAGUACHE COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Bonanza and Cocomongo | Bonanza | Brugger and Keserich | Bonanza | Lead, Zinc |
| Erie and Superior | Rawley Gulch | Lester L. Pickering | Box 500, Salida | Copper, Lead, Zinc |
| Little Jenny | Rawley Mountain | Herbert Burns | Bonanza | Lead, Zinc |
| Rawley and No. 12 | Bonanza | Gould Lease | 911 Midland Savings Bldg., Denver | Silver, Lead, Zinc |
| Rawley No. 3 | Bonanza | Colill Mining Company | 911 Midland Savings Bldg., Denver | Lead, Copper, Zinc |
| St. Joseph | Bonanza | St. Joseph Mining Assn. | 206 Colorado Savings Bldg., Colorado Springs | Lead, Zinc |
| St. Louis | Copper Gulch | Pratt Bonanza Mining & Milling Co. | Bonanza | Gold, Silver, Copper, Zinc, Lead |
| Silver Creek | Silver Creek | Silver Creek Mining Company | 1322 G. Street, Salida | Silver, Lead, Zinc |
| Tornado | Del Norte | Ray Robinson and E. Cory | Box 622, Del Norte | Silver, Lead, Zinc |
| Warwick | Warwick Mountain | Brugger and Keserich | 1102 E. Platte Ave., Colorado Springs | Silver, Lead, Copper |

## OPERATING MINES IN SAN JUAN COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Boston-Dewitt | Silverton | United Production Corporation | 301 E. & C. Building, Denver | Gold, Silver, Copper, Lead, Zinc |
| Colorado Sunrise | Silverton | Colorado Sunrise Mining Company | Box 537, Ouray | Gold, Silver, Lead, Copper, Zinc |
| Columbus | Silverton | Foursome Mining Company | Silverton | Gold, Silver, Copper, Lead, Zinc |
| Fairview | Silverton | Fairview Mines | 1520 Gaylord St., Denver | Manganese |
| Green Mountain | Silverton | Denver Equipment Company | Box 21, Silverton | |
| Hamlet Dexter | Silverton | Hamlet-Dexter Operating Company | 239 Harvey St., Philadelphia, Pa. | Gold, Silver, Copper, Lead, Zinc |
| Henrietta | Silverton | Julian C. Hall and Assoc. | 803 1st National Bank Bldg., Denver | Gold, Silver, Lead, Copper, Zinc |
| Highland Mary | Silverton | Highland Mary Mines, Inc. | 7000 West 64th Ave., Arvada | Gold, Silver, Lead, Copper |
| Lark | Silverton | Lark Mining Company | Silverton | Gold, Silver, Lead, Copper, Zinc |
| London Mines | Silverton | United Production Corporation | 301 E. & C. Building, Denver | Gold, Silver, Lead, Copper, Zinc |
| Pride of the West | Silverton | Denver Equipment Company | Box 21, Silverton | Gold, Silver, Lead, Copper, Zinc |
| St. Paul | Silverton | T. H. Cline and Assoc. | Box 51, Ouray | Gold, Silver, Lead, Copper, Zinc |

| | | | | |
|---|---|---|---|---|
| San Antonio | Silverton and Ouray | Denver Engineering Company | 1400 17th St., Denver | Gold, Silver, Lead, Copper, Zinc |
| Shenandoah-Dives | Silverton | Shenandoah-Dives Mining Company | Silverton | Gold, Silver, Lead, Copper, Zinc |
| Silver Lake | Silverton | Shenandoah-Dives Mining Company | Silverton | Gold, Silver, Lead, Copper, Zinc |

## OPERATING MINES IN SAN MIGUEL COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Alta-St. Louis | Ophir | Alta Mines, Inc. | 1022 1st National Bank Bldg., Denver | Gold, Silver, Lead, Copper |
| Argentine Group | Telluride | Tomboy Gold Mines, Inc. | Telluride | Gold, Silver, Copper, Lead, Zinc |
| Big Mack | Norwood | Chas. Fairlamb and Assoc. | Telluride | Manganese |
| Buckhorn and Empire | Dove Creek | A. F. Sitton | Dove Creek | Vanadium, Uranium |
| Charles T. | Cedar | North Continent Mines, Inc. | Cedar | Carnotite |
| Cone | Cedar | North Continent Mines, Inc. | Cedar | Carnotite |
| Cougar | Cedar | North Continent Mines, Inc. | Cedar | Carnotite |
| Depression | Egnar | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Ellison | Cedar | North Continent Mines, Inc. | Cedar | Carnotite |
| Fall Creek | Placerville | Vanadium Corporation of America | 420 Lexington Ave., New York City | Roscoelite |
| Herbert | Cedar | North Continent Mines, Inc. | Cedar | Carnotite |
| Legion | Cedar | North Continent Mines, Inc. | Cedar | Carnotite |
| Mercantile | Cedar | North Continent Mines, Inc. | Cedar | Carnotite |
| Moquie Jug | Egnar | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| Norma Jean No. 1 | Egnar | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Carnotite |
| North Continent | Cedar | North Continent Mines, Inc. | 512 Majestic Bldg., Cheyenne, Wyoming | Vanadium |
| North Continent Reduction Plant | Cedar | North Continent Mines, Inc. | Cedar | Vanadium |
| Omega | Placerville | Vanadium Corporation of America | 420 Lexington Ave., New York City | Roscoelite |
| Pay Streak No. 3 | Egnar | U. S. Vanadium Corporation | 30 E. 42nd St., New York City | Vanadium |
| Pride of the West | Silverton | Pride of the West, Inc. | Equitable Building, Denver | Gold, Silver, Copper, Lead, Zinc |
| Radium Mines Nos. 1 and 2 | Dove Creek | A. F. Sitton | Dove Creek | Vanadium, Uranium |
| Rare Metals | Telluride | U. S. Vanadium Corp., Agent for Metals Reserve Company | 30 E. 42nd St., New York City | Vanadium |
| Telluride | Telluride | Telluride Mines, Inc. | Telluride | Gold, Silver, Lead, Copper, Zinc |
| Vanadium | Placerville | Vanadium Corporation of America | 420 Lexington Ave., New York City | Roscoelite |

## OPERATING MINES IN SUMMIT COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Bell | Montezuma | Monte Bell Mining Company | 911 Midland Savings Bldg., Denver | Gold, Silver, Lead, Zinc |
| Big Four | Kremmling | Walter McDaniel | Kremmling | Gold, Silver, Lead, Zinc |
| Country Boy | Breckenridge | Garvie London Gold Mining Co. | 617 Cooper Bldg., Denver | Silver, Lead, Zinc |
| Florado | Montezuma | F. R. Wolfle | 702 U. S. Natl. Bank Bldg., Denver | Gold, Silver, Lead, Zinc |
| Jumbo | Breckenridge | A. J. Button and Assoc. | Breckenridge | Gold, Silver |
| Kimberly | Kokomo | Kokomo Kimberly Mines, Inc. | 301 E. & C. Building, Denver | Silver, Lead, Zinc |
| Lucky Strike | Kokomo | Lucky Strike Mine Company | 500 E. & C. Building, Denver | Gold, Silver, Lead, Zinc |
| Monte Cristo | Breckenridge | Golden Cycle Corporation | Box 86, Colorado Springs | Gold, Silver, Lead, Zinc |
| Morgan | Montezuma | Rogers Mines, Inc. | Montezuma | Silver, Lead, Zinc |
| Navy | Breckenridge | James T. Witcher | Fairplay | Tungsten |
| Pennsylvania | Montezuma | R. J. Swanson and Assoc. | 631 So. Gilpin Street, Denver | Silver, Lead, Zinc |
| Royal George | Breckenridge | Ross E. Parker and W. A. Sheldon | Alma | Tungsten |
| Sallie Barber | Breckenridge | F. P. Lilley and T. C. Moran | 437 Broadway, Denver | Silver, Lead, Zinc |
| Shoe Basin | Montezuma | Pennsylvania Gold & Silver Mines, Inc. | 911 Midland Savings Bank Building, Denver | Silver, Lead, Zinc |
| Superior | Montezuma | Clarence L. Martin | Box 46, Montezuma | Silver, Lead, Zinc |
| Wilfley | Kokomo | Wilfley Leasing Company | Kokomo | Gold, Silver, Lead, Zinc |

## OPERATING MINES IN TELLER COUNTY, 1943

| Name of Mine | Location | Operator | P. O. Address | Character of Product |
|---|---|---|---|---|
| Ajax | Victor | Golden Cycle Corporation | Box 127, Cripple Creek | Gold |
| Anchoria Leland | Cripple Creek | Golden Cycle Corporation | Box 127, Cripple Creek | Gold |
| Block 235, etc | Cripple Creek | W. H. Stafford | Cripple Creek | Gold |
| Bull Hill Group | Cripple Creek | The United Gold Mines Company | Box 127, Cripple Creek | Gold |
| Cresson | Victor | Cresson Consolidated Gold Mining and Milling Company | Box 127, Cripple Creek | Gold |
| Favorite | Victor | Vanderwalker, Wade and Brown | Cripple Creek | Gold |
| Gold Bond | Cripple Creek | Golden Swan Mining Company | 206 Mining Exchange Building, Colorado Springs | Gold |
| Grace Greenwood | Cripple Creek | Peiffer and Johnson | Cripple Creek | Gold |
| Index | Cripple Creek | Golden Cycle Corporation | Box 127, Cripple Creek | Gold |

| | | | | |
|---|---|---|---|---|
| Kalamazoo | Bull Hill | Glen Spielman and L. S. Cox | Cripple Creek | Gold |
| Logan Shaft | Bull Hill | A. B. Cobb | Cutbank, Montana | Gold |
| Morning Glory | Victor | Golden Stars Mining Company | 910 1st National Bank Bldg., Denver | Gold |
| Ocabams | Cripple Creek | Ocabams Mining Company, Inc. | Cripple Creek | Gold |
| Portland Nos. 1 and 2 | Victor | The United Gold Mines Company | Box 127, Cripple Creek | Gold |
| Rose Nicol | Victor | The United Gold Mines Company | Box 127, Cripple Creek | Gold |
| Trail Tunnel | Victor | Curtis and Williams | Cripple Creek | Gold |
| Vindicator | Victor | The United Gold Mines Company | Box 127, Cripple Creek | Gold |
| War Eagle | Windy Point | J. M. Hemby | Electra, Texas | Gold |

## OPERATING MILLS AND SMELTERS, 1943

| Character of Plant | Town | County | Operator | Address |
|---|---|---|---|---|
| Boulder Tungsten Custom | Nederland | Boulder | Boulder Tungsten Mills, Inc. | Box 1, Boulder |
| Fluorspar Processing | Salida | Chaffee | Fluorspar Processing Co. | Box 286, Salida |
| Black Eagle Custom | Idaho Springs | Clear Creek | Sam Huntington and O. J. Cross | Idaho Springs |
| Idaho Springs Custom | Idaho Springs | Clear Creek | Millikin and Myers | Idaho Springs |
| Ruth Custom | Idaho Springs | Clear Creek | Joseph P. Ruth | 425 Continental Oil Building, Denver |
| Arsenic & Cadmium Refinery | Denver | Denver | American Smelting and Refining Company | 120 Broadway, New York City |
| Western Feldspar | Denver | Denver | The Western Feldspar Milling Company | 1333 W. Maple St., Denver (9) |
| Colorado Concrete Tile Plant | Colorado Springs | El Paso | Colorado Concrete Manufacturing Company | 208 Mining Exchange Building, Colorado Springs |
| Golden Cycle | W. Colorado Springs | El Paso | The Golden Cycle Corp. | 5th Floor Carlton Bldg., Colorado Springs |
| Empire Zinc | Canon City | Fremont | New Jersey Zinc Company | Canon City |
| Colorado Feldspar Plant | Canon City | Fremont | The Colorado Feldspar Co. | Canon City |
| Rifle Mill | Rifle | Garfield | U. S. Vanadium Corporation | Rifle |
| American Smelting & Refining Plant | Leadville | Lake | American Smelting and Refining Company | 607 First National Bank Building, Denver |
| California Gulch Mills Nos. 1 and 2 | California Gulch | Lake | California Gulch Mining and Milling Co. | Box 939, Leadville |
| Hamm | Upper Carbonate Hill | Lake | John Hamm Mining & Milling, Ltd. | Leadville |
| Ore and Chemical | Leadville | Lake | Ore & Chemical Corp. | Box 922, Leadville |
| Durango Sludge Plant | Durango | La Plata | U. S. Vanadium Corporation | 30 E. 42nd St., New York City |
| Reduction Plant Metals Reserve | Durango | La Plata | Metals Reserve Company | Grand Junction |
| Reduction Plant Gateway Alloys | Gateway | Mesa | Frank N. Nisley and Hays C. Wilson | Gateway |
| Vanadium Refining Plant | Grand Junction | Mesa | U. S. Vanadium Corporation | 30 E. 42nd St., New York City |
| Reduction Plant U. S. Vanadium | Uravan | Montrose | U. S. Vanadium Corporation | 30 E. 42nd St., New York City |
| Reduction Plant Vanadium Corp. of America | Naturita | Montrose | Vanadium Corp. of America | 420 Lexington Ave., New York City |
| General Ore Reduction Custom | Ouray | Ouray | General Ore Reduction Co. | Ouray |
| Buckskin Joe | Alma | Park | Charles W. Jordan | Alma |
| Henry Clay | Aspen | Pitkin | Herron Bros. | Aspen |
| Mica Grinding Plant | Pueblo | Pueblo | Western Non-Metallics, Inc. | 330 West D Street, Pueblo |

# OPERATING QUARRIES AND CLAY PITS, 1943

| Town | County | Name | Product | Operator | Address |
|---|---|---|---|---|---|
| Denver | Adams | No. 1 Loam | Loam | Helmer Bros. | Rt. 1, Box 94, Littleton |
| Lyons | Boulder | St. Vrain Red Sandstone | Sandstone | Helmer Bros.<br>J. C. Brodie Estate | Rt. 1, Box 94, Littleton<br>Lyons |
| Monarch | Chaffee | Monarch | Limestone | The Colo. Fuel & Iron Corp. | Continental Oil Bldg., Denver |
| Salida | Chaffee | Salida Calcium | Calcium Carbonate | Salida Calcium Products Co. | 710 E. Street, Salida |
| Salida | Chaffee | Salida Granite | Granite | Salida Granite Corporation | Salida |
| Denver | Denver | North Denver Loam | Loam | Helmer Bros. | Rt. 1, Box 94, Littleton |
| Littleton | Douglas | Helmer Fire Clay | Fire Clay | Helmer Bros. | Rt. 1, Box 94, Littleton |
| Littleton | Douglas | Helmer Grinding Plant | Fire Clay, Lime, Sand | Helmer Bros. | Rt. 1, Box 94, Littleton |
| Littleton | Douglas | Helmer Lime Quarry | Limestone | Helmer Bros. | Rt. 1, Box 94, Littleton |
| Littleton | Douglas | Helmer White Sand | Yellow Sand | Helmer Bros. | Rt. 1, Box 94, Littleton |
| Castle Rock | Douglas | Johnson Clay | Plastic Clay | E. W. Jackson | Castle Rock |
| Sedalia | Douglas | Magnuson | Feldspar | The M. & S. Inc. | 1333 W. Maple, Denver |
| Sedalia | Douglas | Three Musketeers | Feldspar | The M. & S. Inc. | 1333 W. Maple, Denver |
| Palmer Lake | El Paso | Helmer White Sand | White Sand | Helmer Bros. | Rt. 1, Box 94, Littleton |
| Colorado Springs | El Paso | Johnny | Feldspar | Colorado Feldspar Company | Canon City |
| Colorado Springs | El Paso | Lennox Breed | Limestone | Thomas and Brown Lime Co. | 607 Thatcher Bldg., Pueblo |
| So. Colorado Springs | El Paso | National Brick Plant | Building Brick | National Clay Products Co. | Box 11, Colorado Springs |
| Manitou Springs | El Paso | Thomas & Brown Lime Plant | Limestone | Thomas and Brown Lime Co. | 607 Thatcher Bldg., Pueblo |
| Canon City | Fremont | Alnea or South Gorge and Horney Ganister | Silica | May C. Riede | Canon City |
| Canon City | Fremont | Burnito | Ganister | S. Vernon St. John | 214 Macon Ave., Canon City |
| Canon City | Fremont | Climax, Myra & Deer Hill | Fire Clay | The Diamond Fire Brick Co. | Canon City |
| Canon City | Fremont | Devil's Hole | Beryl, Mica, Feldspar | E. E. Zingheim | North 15th St., Canon City |
| Canon City | Fremont | Dolomite | Dolomite | The Colorado Fuel & Iron Corp. | Continental Oil Bldg., Denver |
| Canon City | Fremont | Flint Shaft | Fire Clay | The Diamond Fire Brick Co. | Canon City |
| Florence | Fremont | Gypsum | Gypsum | Colorado Portland Cement Co. | Denver National Bldg., Denver |
| Parkdale | Fremont | Hoover Silica | Silica | Standard Fire Brick Co. | 24th and Albany, Pueblo |

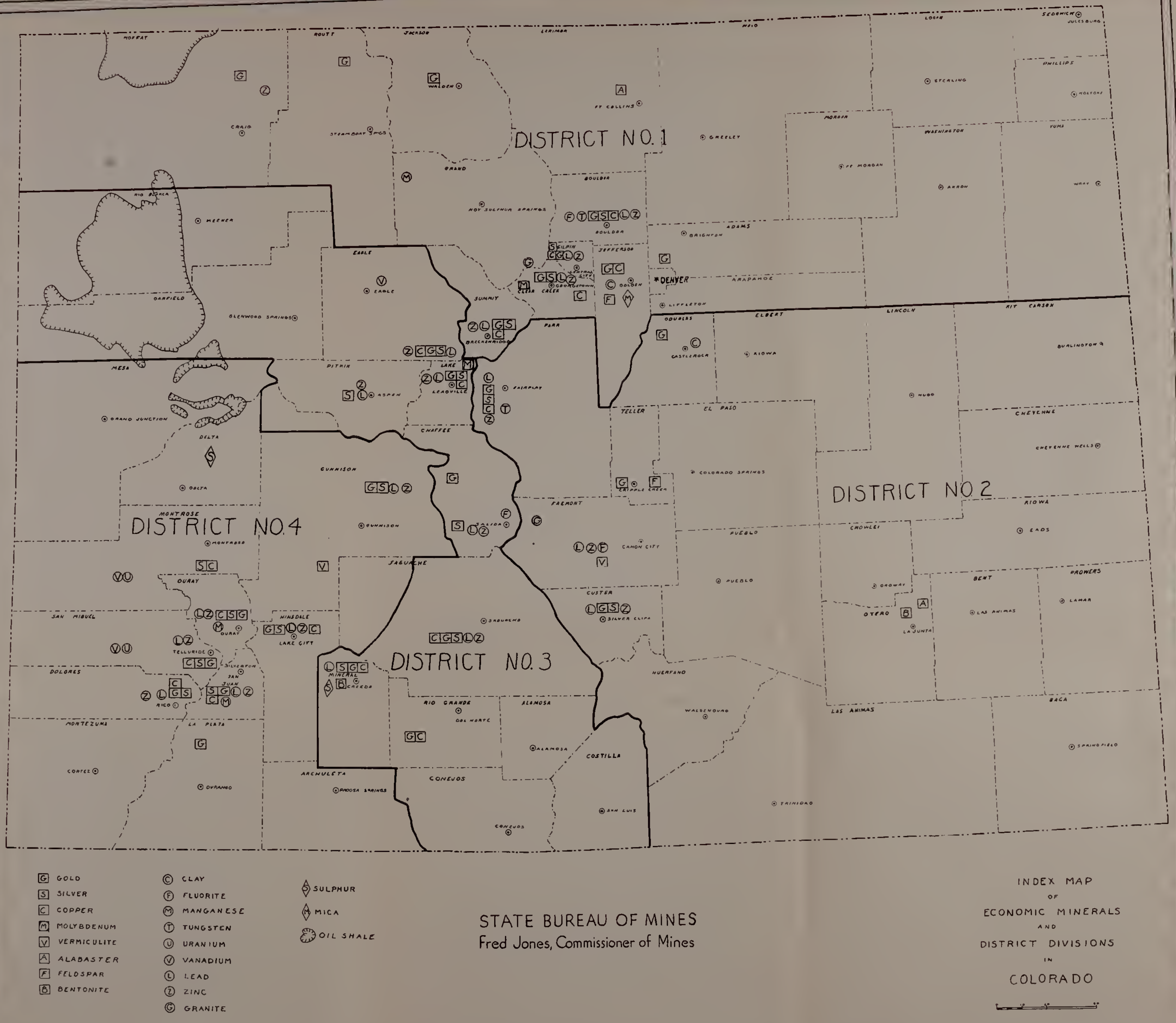
## OPERATING QUARRIES AND CLAY PITS, 1943—Continued

| Town | County | Name | Product | Operator | Address |
|---|---|---|---|---|---|
| 21 mi. Northeast of Salida | Fremont | Marrs Memorial Blue and Marrs Memorial Pink | Monumental Stone | J. A. Marrs | Cotopaxi |
| Canon City | Fremont | Mica Hill Lode | Feldspar, Mica | Robert A. Shipley | 920 Greenwood Canon City |
| Canon City | Fremont | Oak Creek | Feldspar | The Colorado Feldspar Co. | Canon City |
| Canon City | Fremont | Pig Back Shale | Fire Clay | The Diamond Fire Brick Co. | Canon City |
| Portland | Fremont | Portland Cement | Cement and Plaster | Colorado Portland Cement Co. | Denver National Bldg., Denver |
| Portland | Fremont | Portland Quarry | Limestone & Shale | Colorado Portland Cement Co. | Denver National Bldg., Denver |
| Wellsville | Fremont | Rogers Wellsville | Limestone | George R. Rogers | Salida |
| Eight Mile Park | Fremont | School Section | Feldspar, Mica | Colorado Feldspar Co. | Canon City |
| Canon City | Fremont | Shaw Park, H. Rock, Garden Park Rock, Goat Hill Rock | Silica Rock | The Diamond Fire Brick Co. | Canon City |
| Parkdale | Fremont | Spikebuck Feldspar | Feldspar | The M. & S. Inc. | 1333 W. Maple St., Denver |
| Florence | Fremont | State Rock | Silica | William Soden | 1019 Whipple Ave., Canon City |
| Canon City | Fremont | Swastika | Fire Clay | The Diamond Fire Brick Co. | Canon City |
| Wellsville | Fremont | Taylor Gulch | Limestone | Frank H. Norberg Co. | 703 U. S. National Bank Bldg., Denver |
| Westcliffe | Fremont | Vermiculite | Vermiculite | Vermiculite Mining Co. | 406 Thorpe Bldg., Minneapolis, Minn. |
| Glenwood Springs | Garfield | Glenwood Springs | Limestone | Frank H. Norberg Co. | 703 U. S. National Bank Bldg., Denver |
| Sapinero | Gunnison | Colorado Feldspar | Feldspar | Colorado Feldspar Co. | Canon City |
| Gunnison | Gunnison | Vermiculite | Vermiculite | Vermiculite Mining Co. | 406 Thorpe Bldg., Minneapolis, Minn. |
| Golden | Jefferson | Coors Clay Mines & Porcelain Plant | Clay | Coors Porcelain Co. | Golden |
| Golden | Jefferson | D. F. C. Mine | Clay | The Denver Fire Brick Co. | Box 5510, Denver |
| Golden | Jefferson | Golden Clay Mines and Brick Plant | Clay | Golden Fire Brick Co., and Golden Clay Mining Co. | Box 292, Golden |

| | | | | | |
|---|---|---|---|---|---|
| Denver and Golden | Jefferson | Johnson Clay Mine and Brick Plant | Clay | The Denver Sewer Pipe and Clay Company | Box 2329, Denver |
| Golden | Jefferson | Lindsay Clay | Clay | George W. Lindsay | Box 1107, Denver |
| Golden | Jefferson | Parfet Clay | Clay | Grant Parfet | P. O. Box 266, Golden |
| Golden | Jefferson | Rockwell Clay | Clay | Jefferson Clay & Dev. Co. | Box 266, Golden |
| Golden | Jefferson | Rubey Clay | Clay | The H. M. Rubey Clay Co. | Box 266, Golden |
| Golden | Jefferson | South Golden Clay | Clay | The Denver Fire Brick Co. | Box 5510, Denver |
| Golden | Jefferson | South Table Mountain Rock | Crushed and Screened Rock | **City and County of Denver** | City Hall, Denver |
| Golden | Jefferson | Wilson Mine | Clay | The Denver Fire Clay Co. | Box 5510, Denver |
| Laporte | Larimer | Boettcher Cement Quarries and Mill | Cement | Ideal Cement Co. | Denver Nat'l Bldg., Denver |
| Laporte | Larimer | Clark | Limestone | Clark Quarries, Inc. | Box 503, Fort Collins |
| Drake | Larimer | Fred Hyatt | Beryllium, Mica, Feldspar | United Beryllium Ore Co. | 405 Symes Bldg., Denver |
| Laporte | Larimer | Gypsum | Gypsum | S. H. Roberts and Associates | Laporte |
| Bellvue | Larimer | Josefson | Limestone | John and Victor Josefson | Bellvue |
| Loveland | Larimer | U. S. Gypsum Quarries & Plant | Gypsum | United States Gypsum Co. | 300 West Adams, Chicago 6, Illinois |
| Trinidad | Las Animas | Trinidad Brick and Tile | Fire Brick | The Trinidad Brick & Tile Co. | Trinidad |
| Lake George | Park | Beryl Lode | Feldspar, Mica | I. J. Meyers | Canon City |
| Pueblo | Pueblo | Nellie Helen | Fire Clay | Arthur L. Wands | Stone City |
| Pueblo | Pueblo | Rock Creek | Fire Clay | The Standard Fire Brick Co. | Box 654, Pueblo |
| Stone City | Pueblo | Spring Canon Clay | Fire Clay | Pueblo Clay Products Co. | 542 Thatcher Bldg., Pueblo |
| Pueblo | Pueblo | Standard Fire Brick | Fire Brick and Sewer Pipe | The Standard Fire Brick Co. | Box 654, Pueblo |
| Stone City | Pueblo | Stone City | Fire Clay | Pueblo Clay Products Co. | 542 Thatcher Bldg., Pueblo |
| Pueblo | Pueblo | Summit Brick Plant | Building Brick and Tile | The Summit Pressed Brick and Tile Co. | 13th and Erie Sts., Pueblo |
| Pueblo | Pueblo | Vulcan Clay | Fire Clay | The Standard Fire Brick Co. | Box 654, Pueblo |
| Divide | Teller | Midland Ballast Pit | Gravel | Oston Company | Box 127, Cripple Creek |
| Greeley | Weld | Greeley Sand | Sand | Helmer Bros. | Rt. 1, Box 94, Littleton |

## TUNNELS AND ROAD WORK, 1943

| Name | County | Location | Company | Address |
|---|---|---|---|---|
| Loveland Pass Highway Pilot Tunnel | Clear Creek | Silver Plume | Edward Honnen | Box 92, Colorado Springs |
| City of Denver Water Tunnel | Grand | Winter Park | Ball and Sowell | Winter Park |
| Green Mountain Dam | Grand | Kremmling | Warner Construction Co. | Kremmling |
| West Portal Big Thompson Water Tunnel | Grand | Grand Lake | Stiers Construction Company | 2944 Magazine Street<br>St. Louis, Missouri |
| East Portal Big Thompson Water Tunnel | Larimer | Estes Park | S. S. Magoffin, Inc. | Estes Park |



STATE BUREAU OF MINES
Fred Jones, Commissioner of Mines

INDEX MAP
OF
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AND
DISTRICT DIVISIONS
IN
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